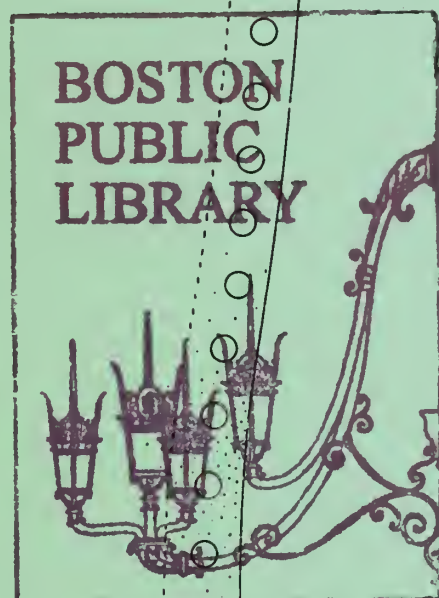


41p; tables, charts, graphs, bibliography

# Hispanic Births in Massachusetts Volume 1: Facts and Figures



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# **HISPANIC BIRTHS IN MASSACHUSETTS**

## **VOLUME 1: FACTS AND FIGURES**

BUREAU OF HEALTH STATISTICS, RESEARCH AND EVALUATION  
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APRIL 1989

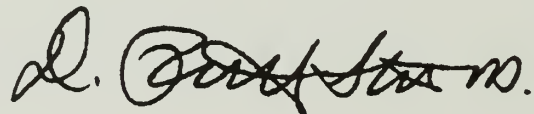
## Preface

I am pleased to introduce Hispanic Births in Massachusetts, Volumes 1 and 2. Hispanic Births in Massachusetts graphically and numerically demonstrates the magnitude of maternal and infant health needs of Massachusetts' growing Hispanic community. From July 1986 through December 1987, Hispanic births in Massachusetts constituted the second largest group of minority births in the Commonwealth after black births. If present migration and fertility trends continue, the number of Hispanic births may surpass the number of black births in the future.

Hispanic Births in Massachusetts provides essential information, in an easily understandable format, for assessing health needs, planning and targeting programs, and advocating for Massachusetts' growing Hispanic community. To address some of the issues raised in these volumes, the Massachusetts Department of Public Health will be establishing a Latino Health Council comprised of Hispanic public health professionals and community leaders from throughout the Commonwealth. The council will work closely with the Department to develop a Latino health agenda and offer us guidance and support in carrying it out.

Hispanic Births in Massachusetts was prepared by the Bureau of Health Statistics, Research and Evaluation within the Massachusetts Department of Public Health. This report is based upon information collected on Massachusetts birth certificates. In June 1986, the Registry of Vital Records and Statistics implemented a revised birth certificate, which includes the detailed questions on both race and ethnicity and enables the identification of Hispanic mothers and infants employed in this report.

Special thanks are due to Ruth Lederman, who prepared this report, as well as to Maria Aguiar, Hortensia Amaro, Doralba Munoz, Ralph Rivera, and Sue Tenorio, who generously provided deeply appreciated consultation in the development of the report.

A handwritten signature in black ink, appearing to read "D. Prothrow-Stith", with a stylized flourish at the end.

Deborah Prothrow-Stith, M.D.  
Commissioner

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## Technical Notes

Volume 1 is organized to meet a variety of needs. Chapter One is a brief overview highlighting the essential information and comparing Massachusetts Hispanic births with U.S. averages. Chapter Two is devoted to graphic comparisons among Hispanics: Puerto Ricans, Dominicans, Cubans and others in Massachusetts. The accompanying text explains the charts and graphs and indicates where more detailed information can be found in Chapter Three. Chapter Three is for program planners and policy makers. These tables provide the detailed information for the graphs in Chapter Two as well as a few additional analytic variables of interest. Detailed reference tables are provided for Hispanics and other race/ethnic groups.

Volume 2 contains detailed city-specific data for the ten Massachusetts communities with the most Hispanic births. These tables follow the format used in Volume 1, Chapter 3, so that city-specific information can be compared with statewide data. Data for particular Hispanic subgroups are omitted for cities where the number of births are too small to be informative.

The unit of analysis for these volumes is births. If a woman had more than one birth during the study period each birth is counted separately.

The percentages reported on all charts, graphs, and tables are based on the number of known responses for a particular variable, unless the number of unknown is specifically reported. Also, the number of births may vary from table to table depending on the number of unknown responses.

When a race/ethnic category for a variable contains less than five births, the number and the corresponding percentage are not reported because of confidentiality and statistical concerns about the lack of stability of estimates based on small numbers of observations.

The Hispanic group "Other" is a combination of mothers who did not report any of the designated Hispanic subgroups. In Volume 2, "Other Hispanic" may include other subgroups which had less than five births in a city.

The variable "Source of Prenatal Care Payment" is divided into three categories in this report. The "Public" category refers to prenatal care payment by Medicaid, Medicare, Healthy Start, Workers' Compensation or other government programs. The "Private" category refers to prenatal care payment by Blue Cross, commercial insurers, or a Health Maintenance Organization. The third category is for prenatal care payment by self pay or free care.

### **Erratum, page 1, Figure 1:**

"1950" should read "1980"; "1980" should read "1988".



✓

# ***CHAPTER ONE:***

## ***OVERVIEW***



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HISPANICS: A LARGE and GROWING COMMUNITY

National Trends

Hispanics number 19.4 million people and constitute 8.1% of the United States population.<sup>5</sup>

The Hispanic population in the United States grew substantially between 1950 and 1980, from 4.0 million people and 2.7% of the population in 1950 to 14.6 million people and 6.4% of the population in 1980.<sup>9</sup> {See Figure 1.}

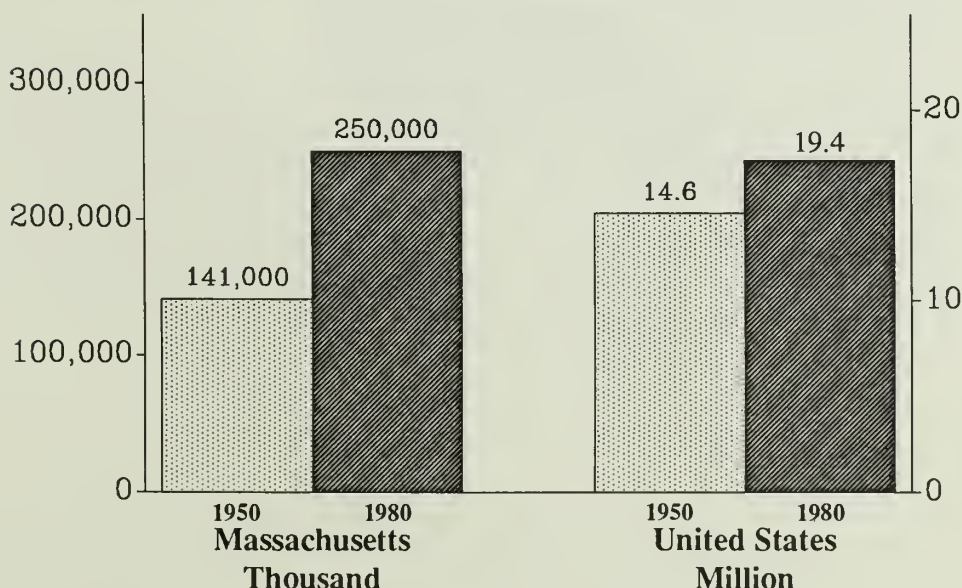
8.1% of United States population in 1988-20.2% in 2025

Demographic experts predict that the Hispanic population will continue to grow, and will constitute over 20% of the United States population in 2025.<sup>23</sup> If these predictions come true, Hispanics will constitute the single largest minority group in the United States by the early years of the 21st century.

Hispanics are concentrated in four states nationally: California (33.9% of Hispanic population in the United States), Texas (21.3%), New York (10.9%), and Florida (10.9%).<sup>5</sup>

Figure 1.

Hispanic Population: Massachusetts and United States  
1950 and 1980



### *Massachusetts Trends*

*4% of Massachusetts population in 1988*

While almost three out of four Hispanics live in four states, the Hispanic community in Massachusetts is also large and growing. In 1980, approximately 141,000 Hispanics lived in Massachusetts.<sup>3</sup> Between 1980 and 1988, the Bureau of the Census estimates that the Hispanic community in Massachusetts grew by 75%, to approximately 250,000 people. {See Figure 1.}

Hispanic infants of today represent the future of the Hispanic community in Massachusetts. The numbers of Hispanic infants, the demographic characteristics of their mothers, the birth characteristics of infants, and the medical care utilization patterns during pregnancy and delivery constitute crucial markers of the:

- growth of the Massachusetts Hispanic community;
- health status of the Hispanic community;
- and access to health care of the Hispanic community.

### *About This Publication*

Hispanic Births in Massachusetts, Volume 1: Facts and Figures and Volume 2: City Data Book present new information--never available before--on maternal and infant characteristics as well as access to health care issues facing Hispanics in Massachusetts.

Volume 1 contains three chapters. Chapter One is this Overview, which highlights key points of Hispanic birth data. Chapter Two presents data available from the birth certificate using charts and graphs with accompanying explanatory text. Chapter Three provides statewide numeric data to supplement the charts in Chapter Two. Volume 2 expands on Volume 1, Chapter Three, by presenting the same tables for the ten largest Hispanic communities rather than for the state as a whole.

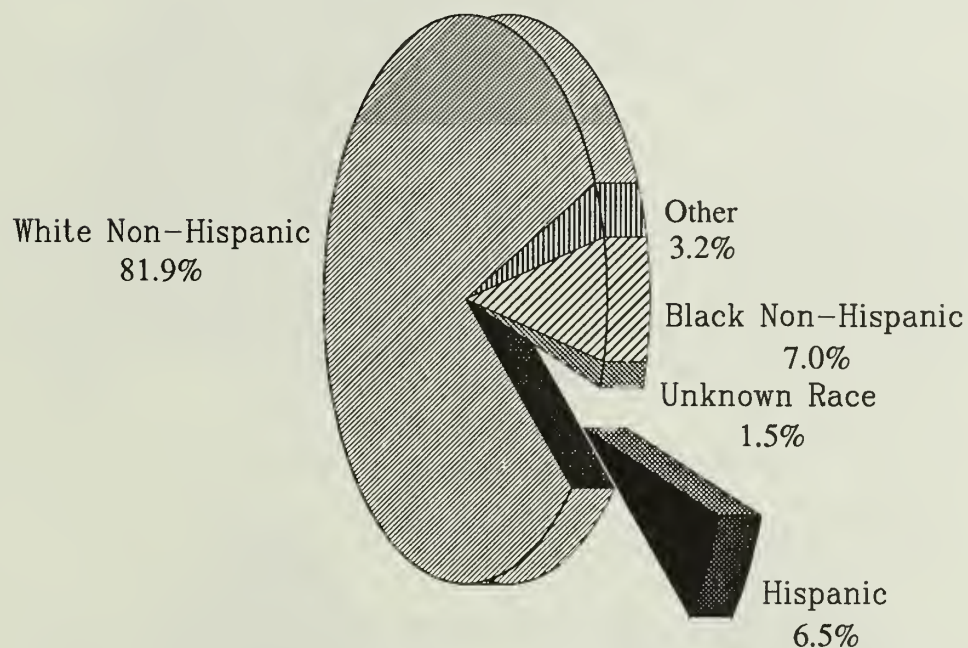
### *Evidence of a Growing Minority Group*

From July 1986 through December 1987, 8,145 infants were born to Hispanic mothers in Massachusetts. These 8,145 Hispanic births constituted 6.5% of total Massachusetts births during this period. Hispanic births constitute the second largest minority group among Massachusetts births, almost equal to the number of Black non-Hispanic births, 8,724 (7.0%).

*{See Figure 2}*

*Hispanic births--6.5% of all  
Massachusetts births*

**Figure 2.  
Massachusetts Births**





## Diversity of National Origins

### Hispanic mothers--born in 50 different countries

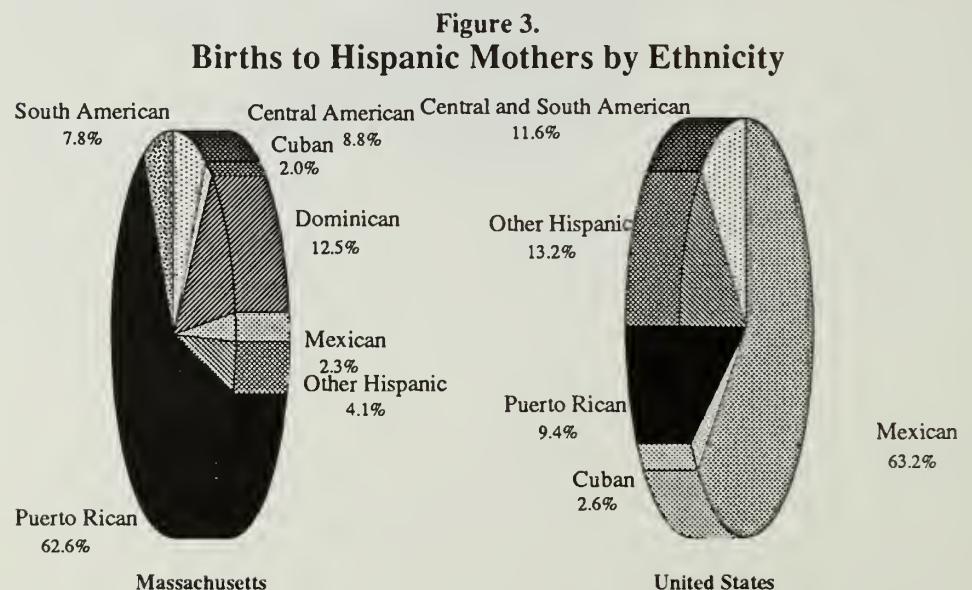
Hispanic mothers who gave birth in Massachusetts from July 1986 through December 1987 were born in many countries throughout the world, including: the continental United States, Puerto Rico, Mexico, 11 South American countries, 7 Central American countries, 8 Caribbean countries, and 22 other countries scattered throughout Europe, Asia, and Africa.

The self-identified national origins of Hispanic mothers in Massachusetts are diverse:

- mothers of 62.6% of infants identified themselves as Puerto Rican;
- 12.5% as Dominican;
- 8.8% as from Central American countries;
- 7.8% as from South American countries;
- and 2.3% as Mexican, 2.0% as Cuban, and 4.1% as other Hispanic origins.

{See Figure 3.}

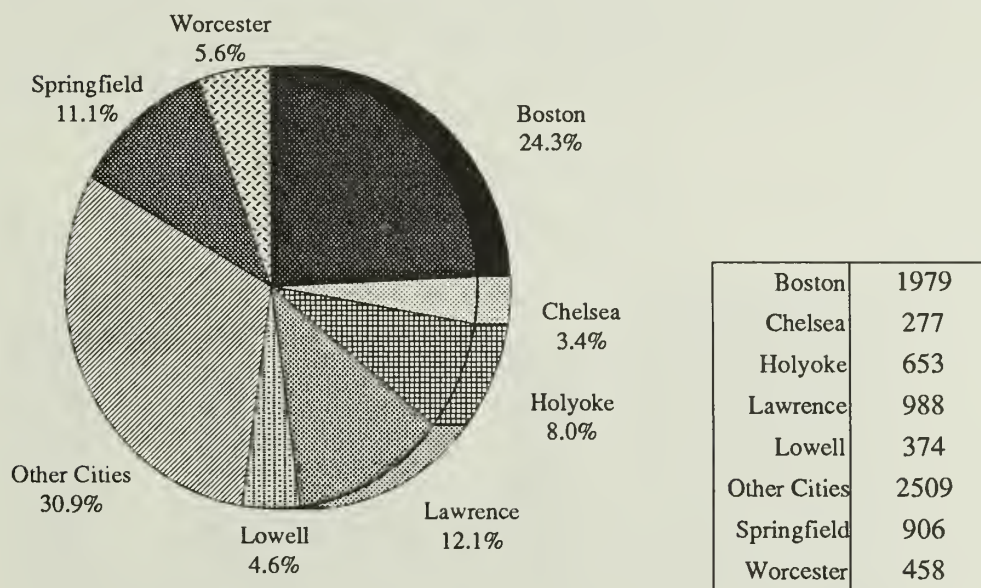
The pattern of national origins among Hispanic mothers in Massachusetts differs from the pattern of national origins among Hispanic mothers throughout the United States. In the United States as a whole, Hispanic mothers are overwhelmingly of Mexican origin (63.2%), followed by Central and South Americans (11.6%), and then by Puerto Ricans (9.4%).<sup>17</sup>



### Diversity of Cities of Birth

Seven out of every ten Hispanic births in Massachusetts were concentrated among residents of 7 cities: Boston (24.3%), Lawrence (12.1%), Springfield (11.1%), Holyoke (8.0%), Worcester (5.6%), Lowell (4.6%), and Chelsea (3.4%). *Hispanic births--70% in only 7 cities* {See Figure 4.}

Figure 4.  
Hispanic Births in Massachusetts



In Holyoke, Lawrence, and Chelsea, about 4 out of every 10 births from July 1986 through December 1987 were to Hispanic mothers.

CHARACTERISTICS OF HISPANIC MOTHERS IN MASSACHUSETTS: AGE, EDUCATION, and MARITAL STATUS

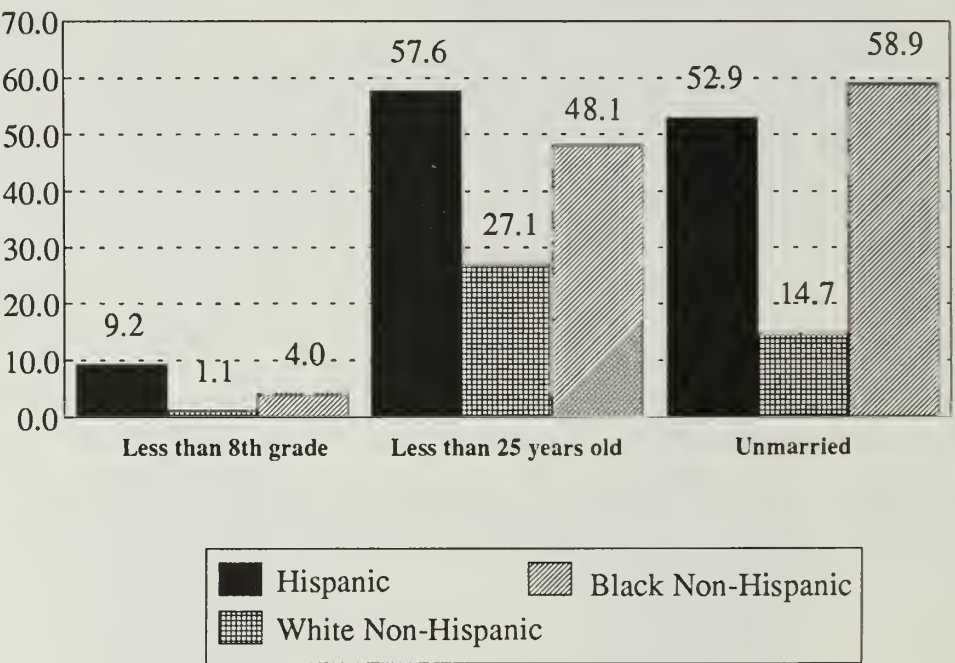
Differences between Hispanic Mothers and Other Massachusetts Mothers

Hispanic mothers--57.6%  
under age 25

Hispanic mothers are more likely to be young, less educated, and unmarried than white non-Hispanic mothers. For example, 57.6% of Hispanic mothers are under age 25 compared to 27.1% of white non-Hispanic mothers, and 48.1% of black non-Hispanic mothers. {See Figure 5.}

Marked variation in maternal age, education, and marital status exists within the Hispanic community according to national origin. In particular, Puerto Rican mothers are much younger (27.8% under age 20) than both Dominican (10.2% under age 20) and Central American mothers (12.1% under age 20).

Figure 5.  
Maternal Characteristics



Massachusetts' pattern of wide variation in maternal age within the Hispanic community according to national origin is similar to patterns throughout the United States.<sup>17, 24-28</sup>

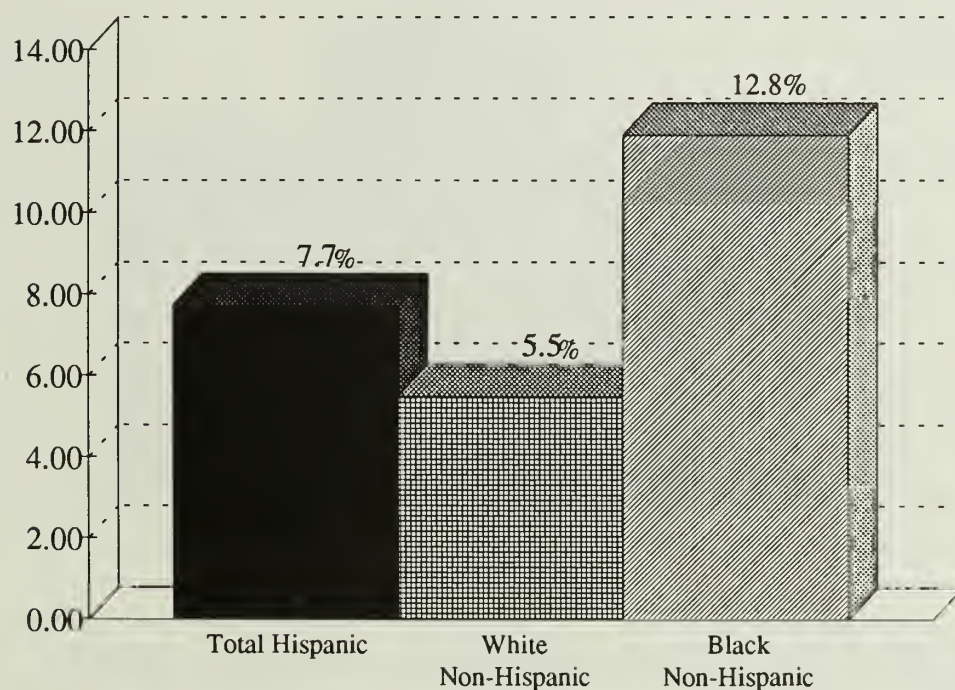
## CHARACTERISTICS OF HISPANIC BIRTHS IN MASSACHUSETTS: BIRTHWEIGHT

The proportion of Hispanic infants born at low birthweight is greater than white non-Hispanic infants: 7.7% of Hispanic infants are low birthweight compared to 5.5% of white non-Hispanic infants and 12.8% of black non-Hispanic infants. {See Figure 6. }

*Hispanic infants--7.7% born with low birthweight*

As with maternal characteristics, birthweight varies between Hispanics and non-Hispanics and within the Hispanic community. More Puerto Rican infants are born at low birthweight (8.5%) compared to infants born to other Hispanic mothers.

**Figure 6.**  
**Low Birthweight Births**



Massachusetts' patterns of birthweight distribution for Hispanic infants are similar to patterns throughout the United States.<sup>17,20,24-28,30</sup> The Massachusetts birthweight differences between infants of mainland-born mothers and infants of island-born mothers are also consistent with national patterns.<sup>7,29</sup>



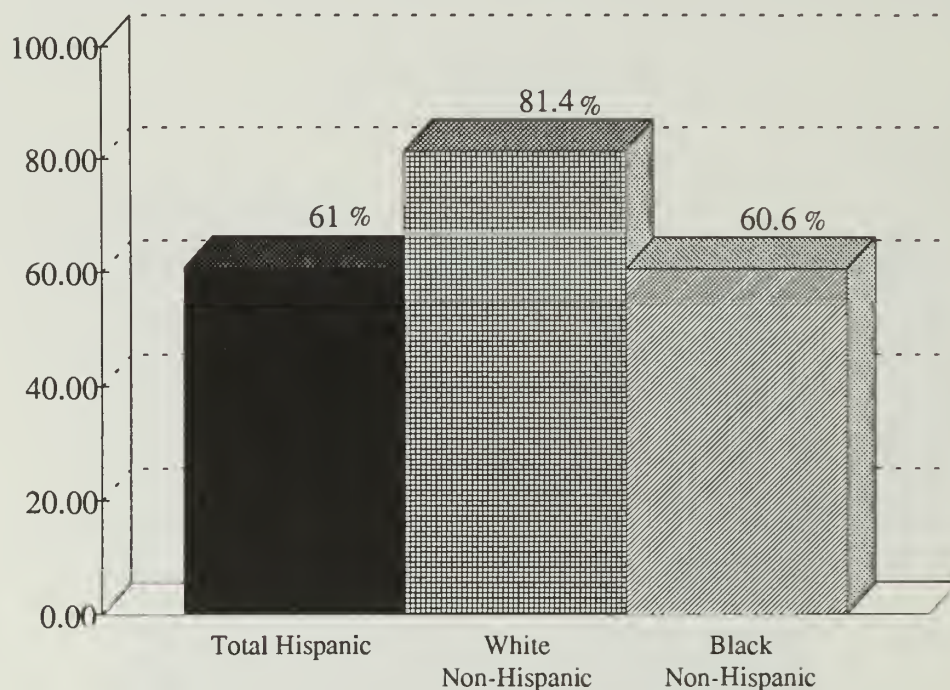
## ***MEDICAL CARE UTILIZATION OF HISPANIC MOTHERS DURING PREGNANCY AND DELIVERY: ADEQUACY OF PRENATAL CARE***

*Hispanic mothers--61.0% receive adequate prenatal care*

Adequacy of prenatal care is an objective indicator of prenatal care utilization, based upon a combination of the number of prenatal care visits and the trimester in which those visits began. Hispanic mothers in Massachusetts have less adequate prenatal care utilization during pregnancy than white non-Hispanic mothers. The mothers of only 61.0% of Hispanic infants received adequate prenatal care during pregnancy, compared to mothers of 81.4% of white non-Hispanic infants and 60.6% of black non-Hispanic infants.

*{See Figure 7.}*

**Figure 7.**  
**Adequacy of Prenatal Care**



Adequacy of prenatal care varies little with the national origin of Hispanic mothers: all major Hispanic groups receive low levels of adequate prenatal care, compared to white non-Hispanic mothers.

Massachusetts' patterns of adequacy of prenatal care utilization for Hispanic mothers, especially for Puerto Ricans, are similar to patterns throughout the United States.<sup>17</sup>



## ***DATA COLLECTION***

All of the information on Massachusetts births contained in this report is based upon data from the Massachusetts certificate of live birth. In June 1986, a new birth certificate was implemented which includes a new question asking for the ancestry, as well as place of birth and race of both parents.

In this publication, the term 'Hispanic' is used to identify people who characterize their ancestry as Puerto Rican, Central American, South American, or other Spanish speaking countries. Hispanic is meant to be interchangeable with the term 'Latino'.

---



***CHAPTER TWO:***  
***FACTS AND FIGURES***

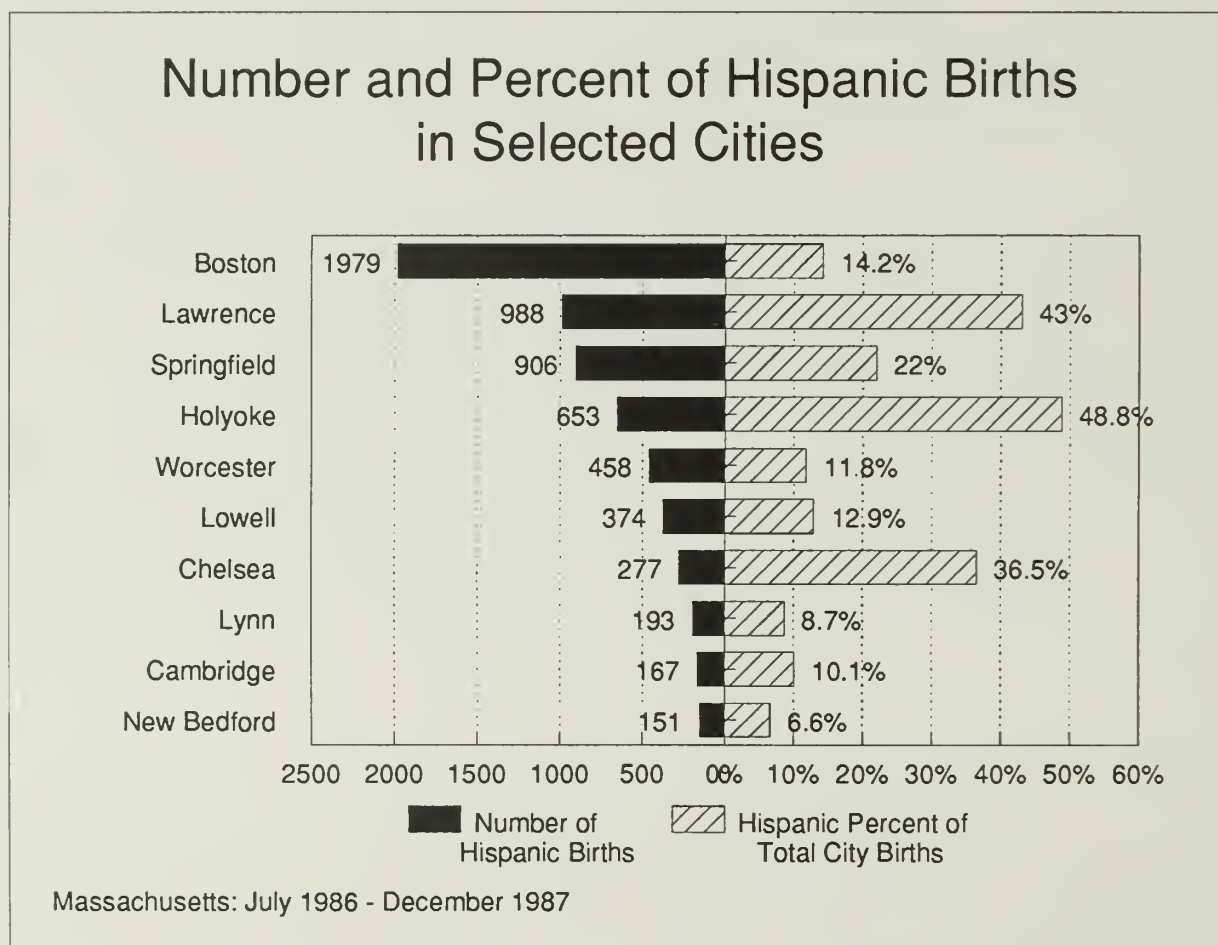
## Demographic Characteristics

*What cities have the greatest proportion of Hispanic births?*

### *Cities of Residence*

Although Boston had the most Hispanic births (1,979), only 14.2% of all births to Boston residents were to Hispanic women. In comparison, in Holyoke, 48.8% of all resident births were to Hispanic women. In Lawrence, 43.0% of all resident births were to Hispanic women. Although only 277 Hispanic births occurred to women living in Chelsea, this represented 36.5% of all births to Chelsea residents.

Figure 1.



*In what hospitals do Hispanic births occur?*

Brigham & Women's Hospital, the largest maternity hospital in Boston and in the Commonwealth, had the most Hispanic births during the study period (1,333). Baystate Medical Center in Springfield had the next most Hispanic births (1,238), followed by Lawrence General Hospital (715), Boston City Hospital (450), Providence Hospital in Holyoke (443), and Lowell General Hospital (360). See Chapter 3, Table 3 for more detailed information on the distribution of Hispanic births among Massachusetts hospitals.

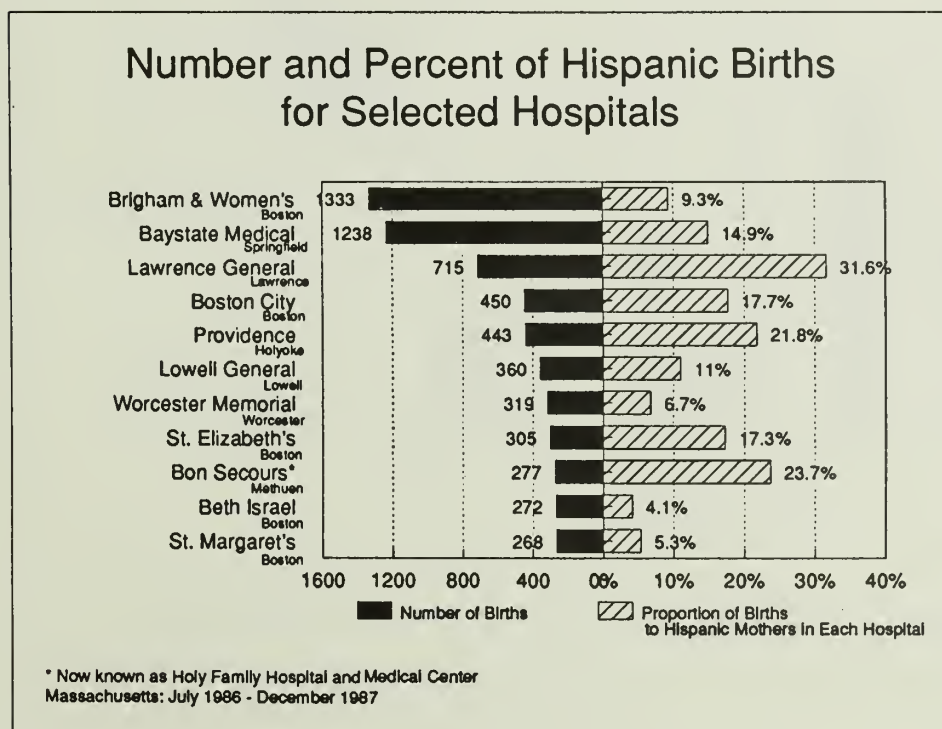
*Birth Hospitals*

*What hospitals have the greatest proportion of Hispanic births?*

Lawrence General Hospital had the greatest proportion of Hispanic births: 31.6% of infants born at Lawrence General Hospital were Hispanic. Brigham & Women's Hospital had the largest number of Hispanic births, yet only 9.3% of the infants born at Brigham & Women's were Hispanic.

Seventy-three percent of all Hispanic births occurred in the eleven hospitals displayed.

**Figure 2.**

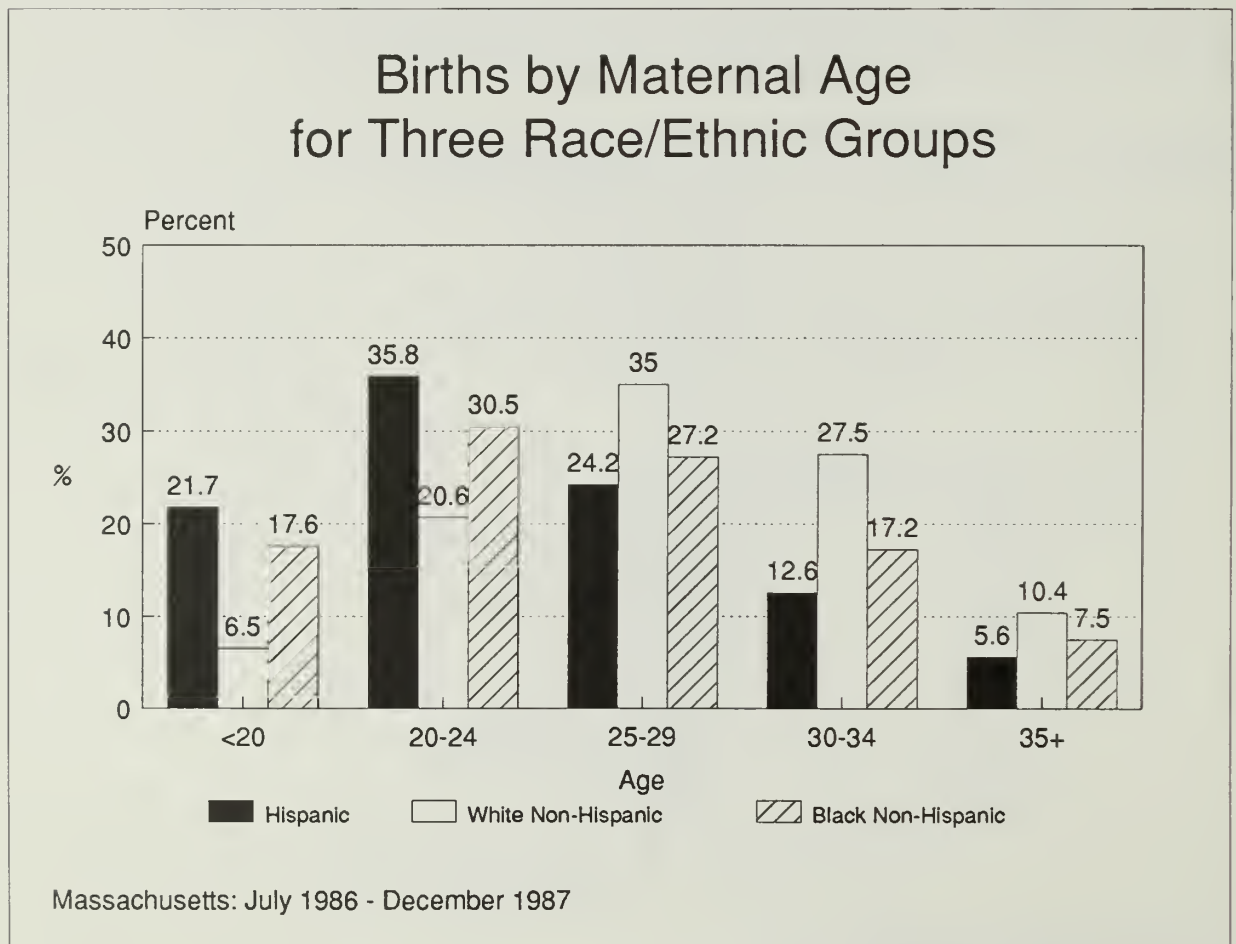




*At what age do Hispanic women give birth?*

Teenagers who give birth, especially in their earlier teens, are at higher risk for complications of delivery than women 20-35 years old. 21.7% of Hispanic mothers were under age 20 compared to 6.5% of white non-Hispanic mothers. 35.8% of births to Hispanic women occurred in the 20-24 year old group compared to 20.6% of white non-Hispanic mothers. Almost three fifths (57.5%) of Hispanic mothers were under age 25, compared to about one-quarter (27.1%) of white non-Hispanic mothers. See Chapter 3, Table 4 for a complete age distribution by race and ethnicity.

Figure 3.

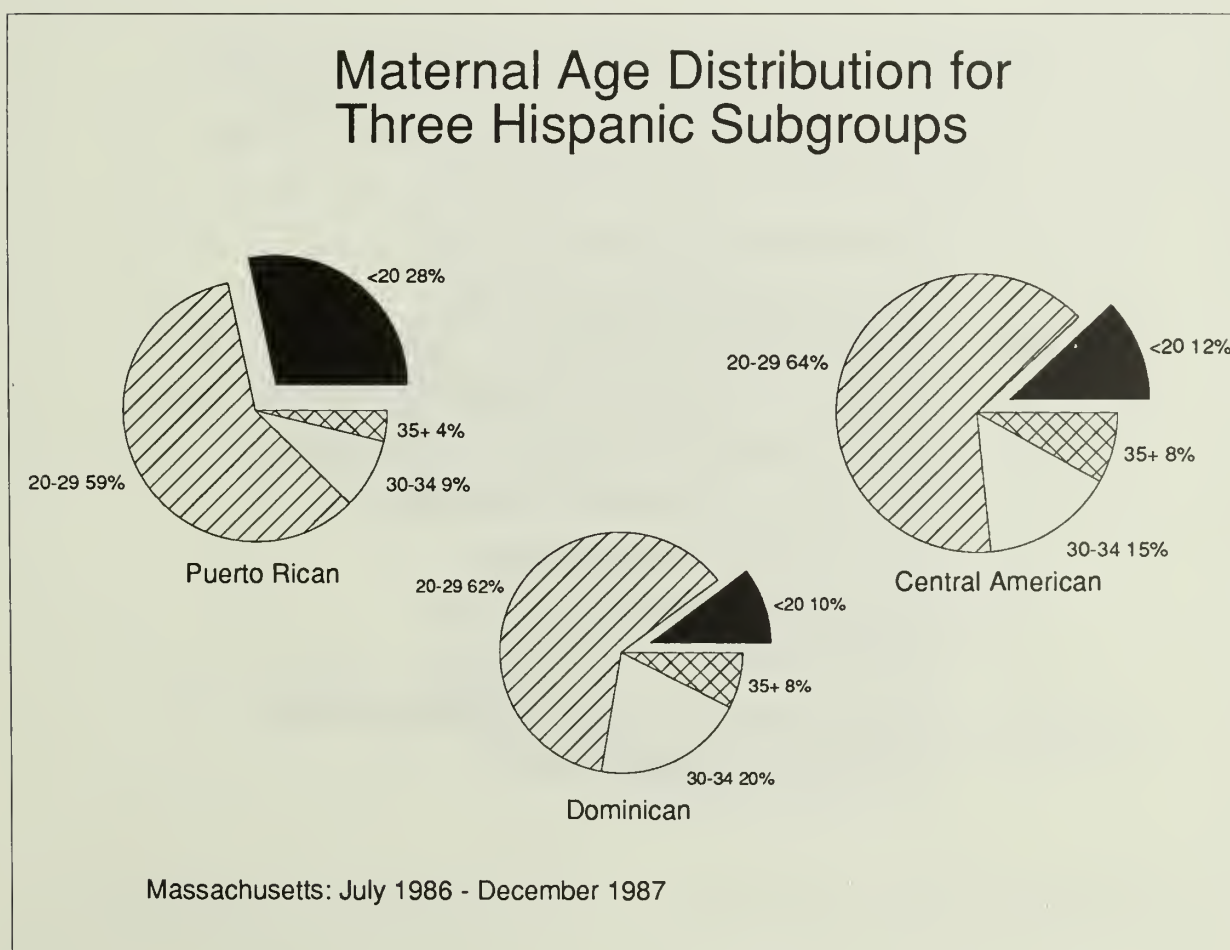


*Does mother's age differ among Puerto Ricans, Dominicans, and Central Americans?*

Puerto Rican mothers tended to be younger than Dominicans and Central Americans: 27.8% of Puerto Rican mothers were less than 20 years old, compared to 10.3% of Dominicans and 12.1% of Central Americans. 7.5% of Dominicans and 8.1% of Central Americans are 35 years or older, compared to 3.8% of Puerto Ricans.

*Maternal Age and National Origin*

Figure 4.

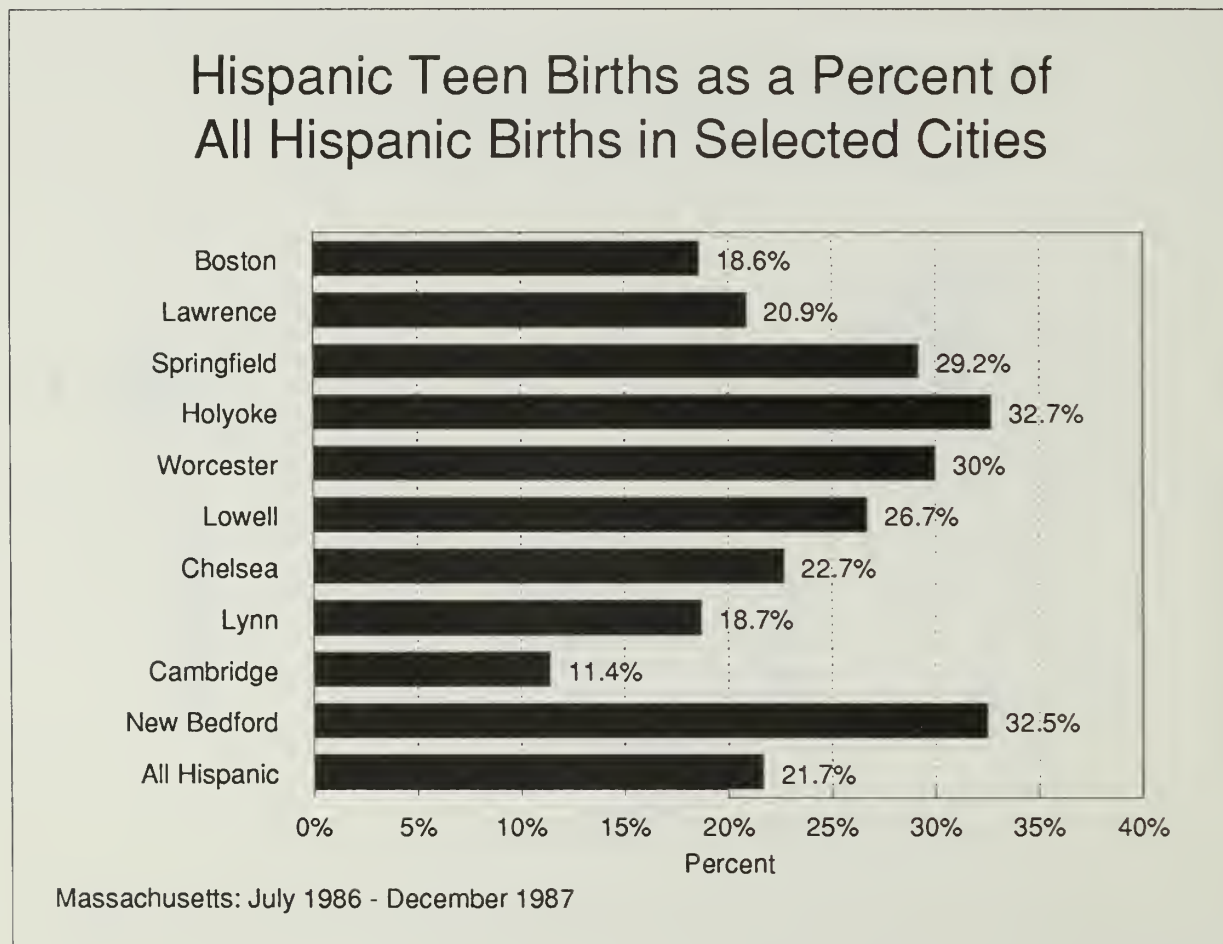


*Does the proportion of Hispanic births differ by city throughout Massachusetts?*

*Teen Births*

The proportion of Hispanic births to teen mothers varied enormously in cities across Massachusetts, from 11% to 33%. In Holyoke (32.7%), New Bedford (32.5%), Worcester (30.0%), and Springfield (29.2%) almost one third of all Hispanic births were to teenagers. In contrast, in Cambridge 11.4% of all Hispanic births were to teenage mothers. See the city-specific tables in Volume 2 for a complete description of maternal age in each city.

**Figure 5.**



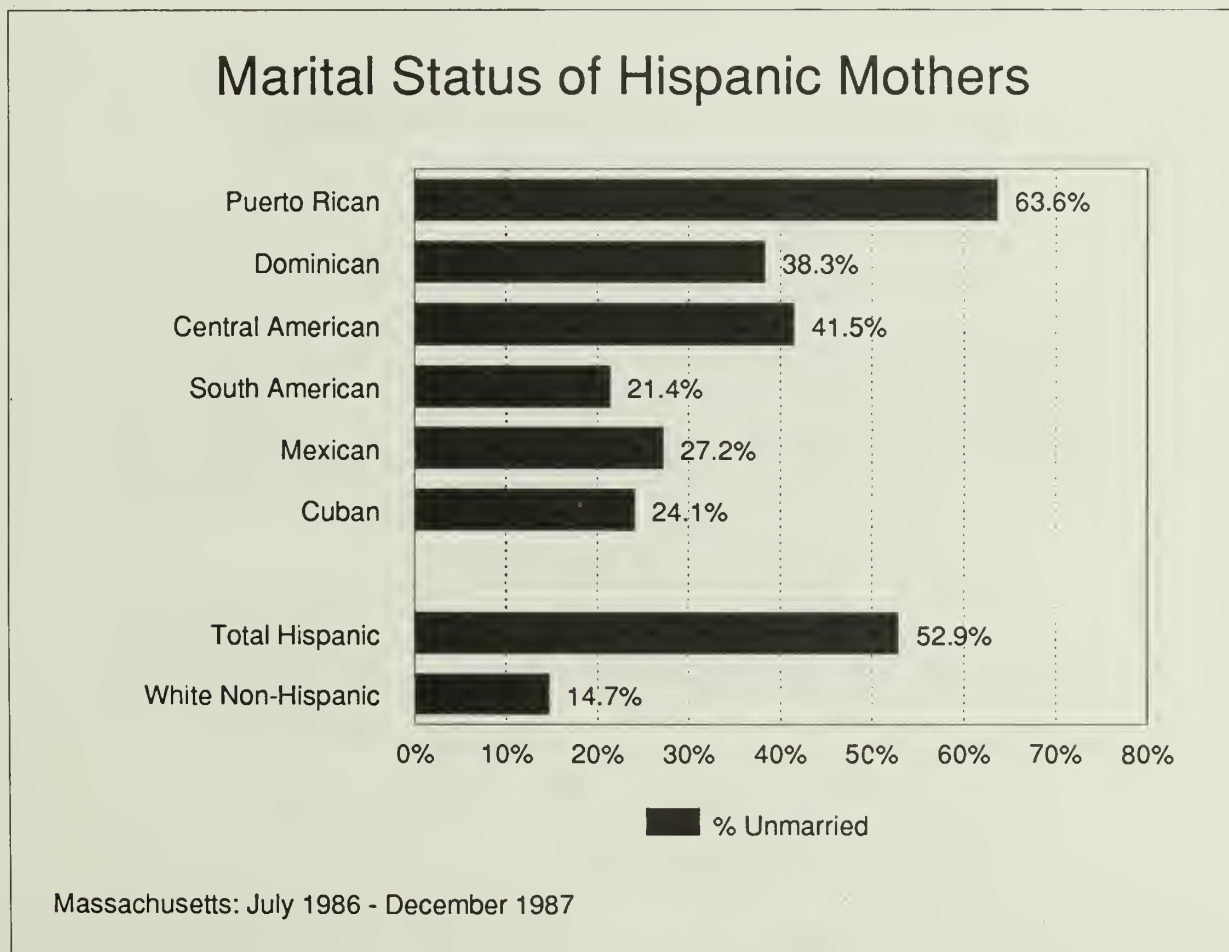
*What proportion of Hispanic mothers are not married?*

Hispanic women are less likely to be married when they give birth than white non-Hispanic women. 52.9% of all Hispanic mothers were unmarried compared to 14.7% of white non-Hispanic mothers.

*Marital Status*

Puerto Ricans had the highest proportion of unmarried mothers, 63.6%. In comparison, 38.3% of Dominican mothers and 41.5% of Central American mothers were not married. Fewer than one out of every three South American (21.4%), Mexican (27.2%), and Cuban (24.1%) mothers were unmarried when they gave birth. See Chapter 3, Table 5 for a complete description of marital status by race and ethnicity.

**Figure 6.**



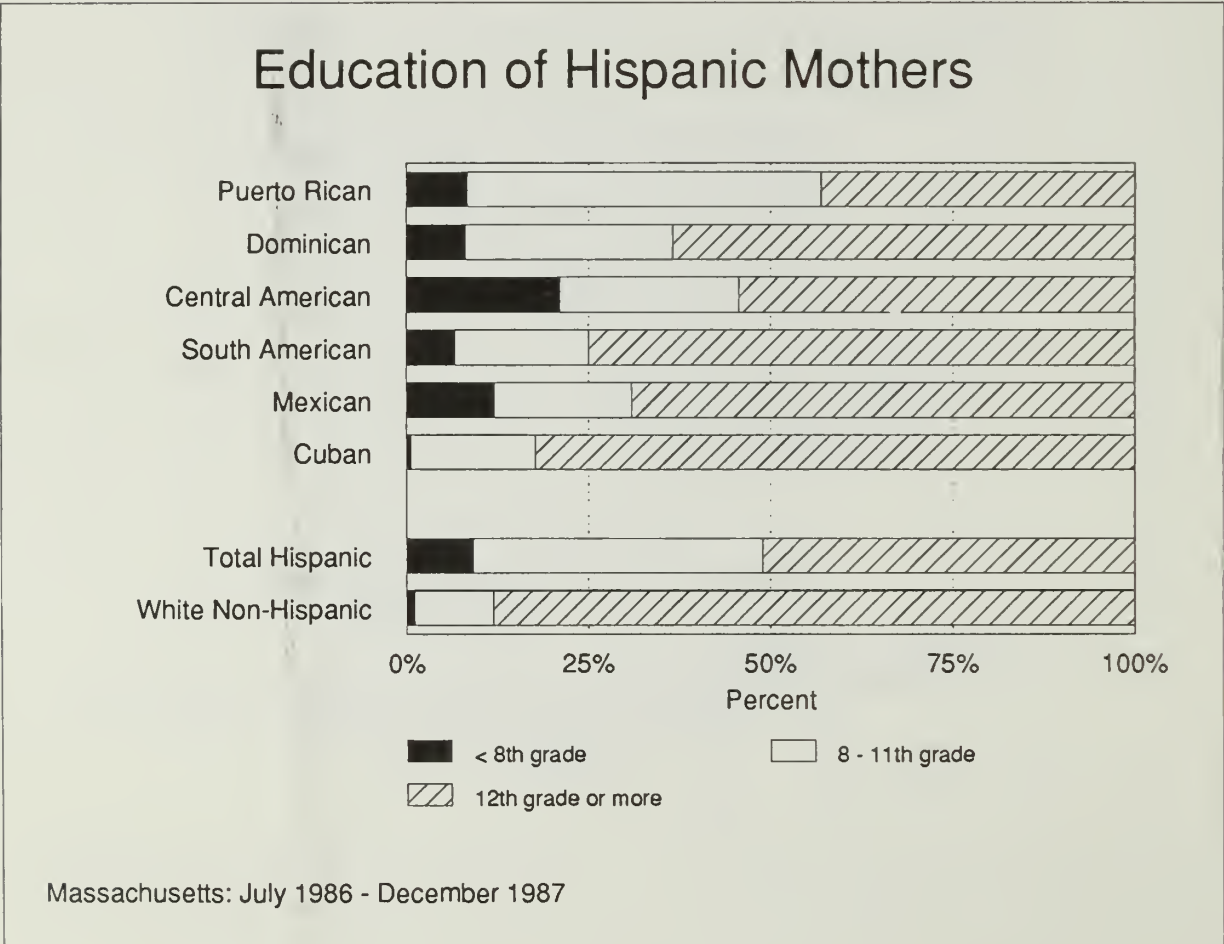
How much education do Hispanic mothers have?

Education

Hispanic mothers in Massachusetts have less education than white non-Hispanic women. Almost four times more Hispanic mothers did not graduate from high school than white non-Hispanic mothers (48.9 vs. 11.9%).

Educational levels also differed among Hispanic mothers of different national origins: 82.3% of Cuban mothers had at least a 12th grade education, compared to 43.0% of Puerto Ricans, 63.4% of Dominicans and 69.1% of Mexicans. See Chapter 3, Table 6 for a complete description of education by race and ethnicity.

Figure 7.





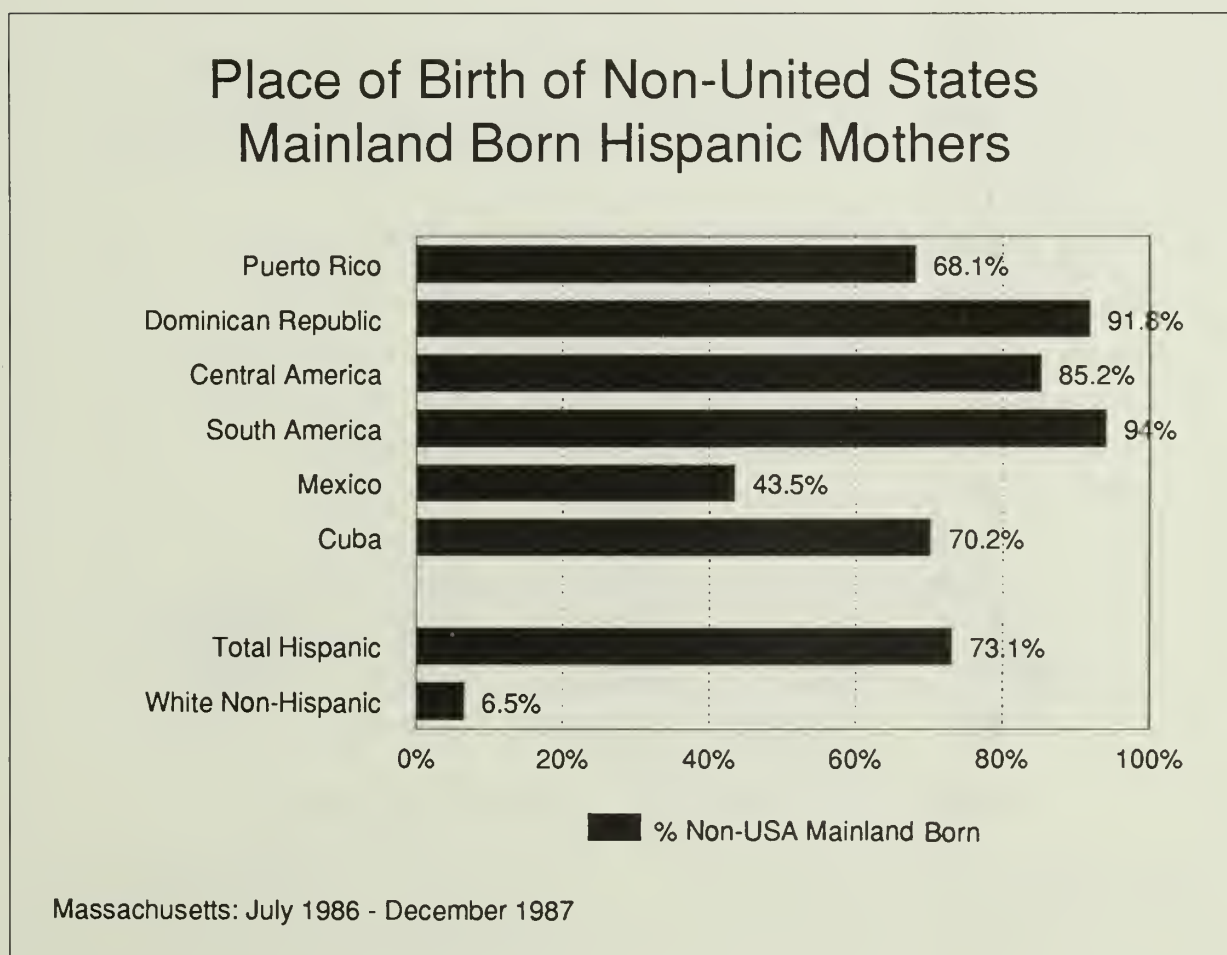
*What proportion of Hispanic mothers are non-USA mainland born?*

Women born in other countries may have different health practices than women born in the continental United States. In addition, language and cultural barriers may influence their participation in the health care system. 73.1% of all Hispanic mothers reported their birth place as somewhere other than the continental United States, compared to 6.5% of white non-Hispanic mothers.

*Mother's Place of Birth*

91.8% of Dominican mothers and 94.0% of South American mothers were non-USA mainland born. Slightly more than two-thirds (68.1%) of Puerto Rican mothers were non-USA mainland born. In comparison, only 43.5% of Mexican mothers were non-USA mainland born. See Chapter 3, Tables 1 and 7 for a complete description of place of birth for Hispanic mothers.

**Figure 8.**

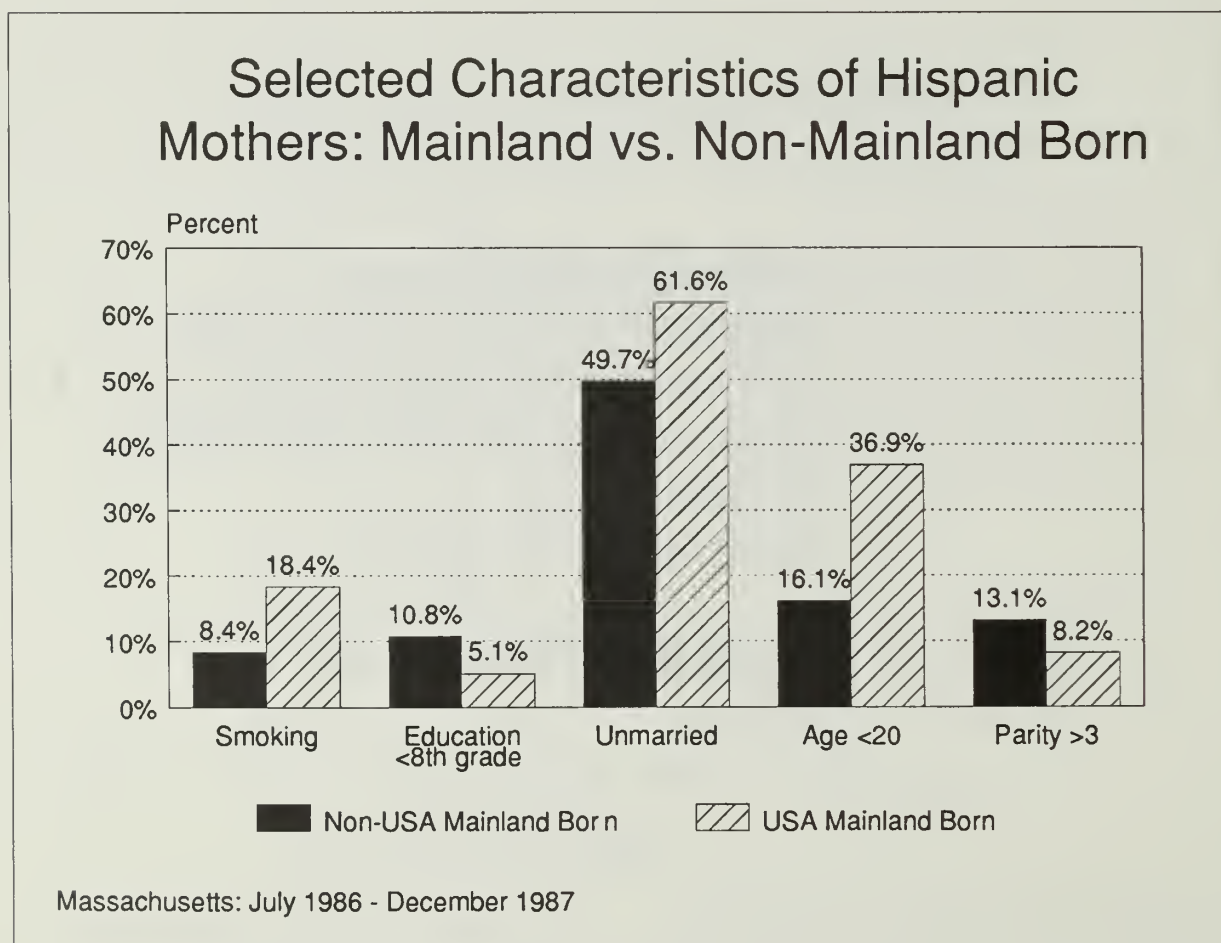


*How do Hispanic mothers born outside of the mainland USA differ from mainland born mothers?*

*Mother's Place of Birth  
and Mother's Character-  
istics*

Smoking, low educational attainment, not being married, age less than 20 years, and high parity (total number of live births) are considered potential risk factors for adverse birth outcomes. Compared to mainland born Hispanic mothers, non-USA mainland born Hispanic mothers had lower levels of risk for smoking (8.4% vs. 18.4% smoked), marital status (49.7% vs. 61.6% unmarried), and age (16.1% vs. 36.9% under age 20). Mainland born Hispanic mothers had lower levels of risk for education and parity. See Chapter 3, Table 8 for a description of these and other important risk factors by place of birth.

Figure 9.



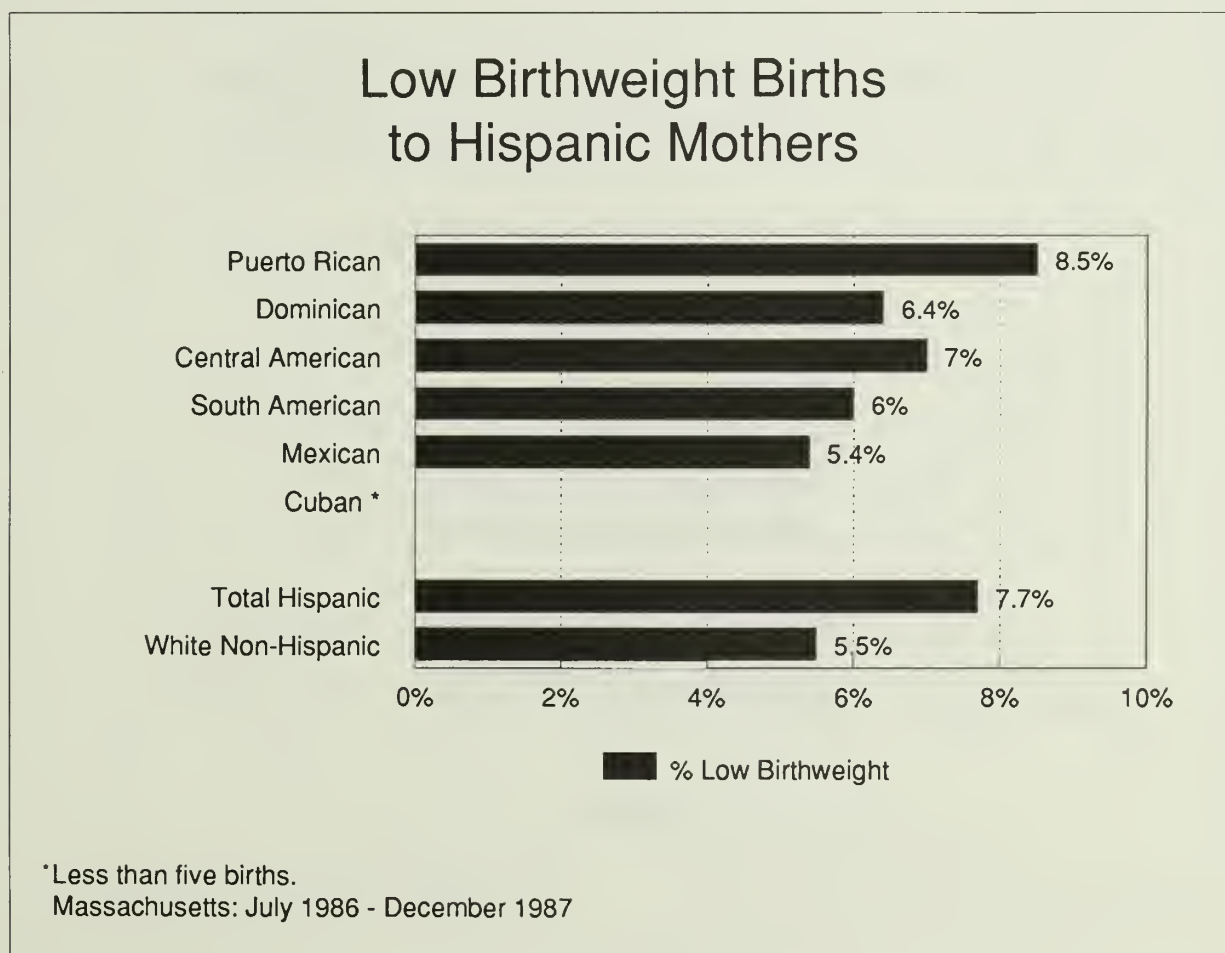
## ***Birth Characteristics***

*What proportion of Hispanic births are low birthweight?*

An infant born weighing under 2,500 grams (5.5 pounds) is considered low birthweight and possibly at risk for survival. 7.7% of all Hispanic births are low birthweight births, compared to 5.5% of all white non-Hispanic births. Low birthweight births range from a high of 8.5% among Puerto Rican mothers to 5.4% among Mexican mothers. See Chapter 3, Table 5 for a complete description of low birthweight by race and ethnicity.

*Low Birthweight*

**Figure 10.**



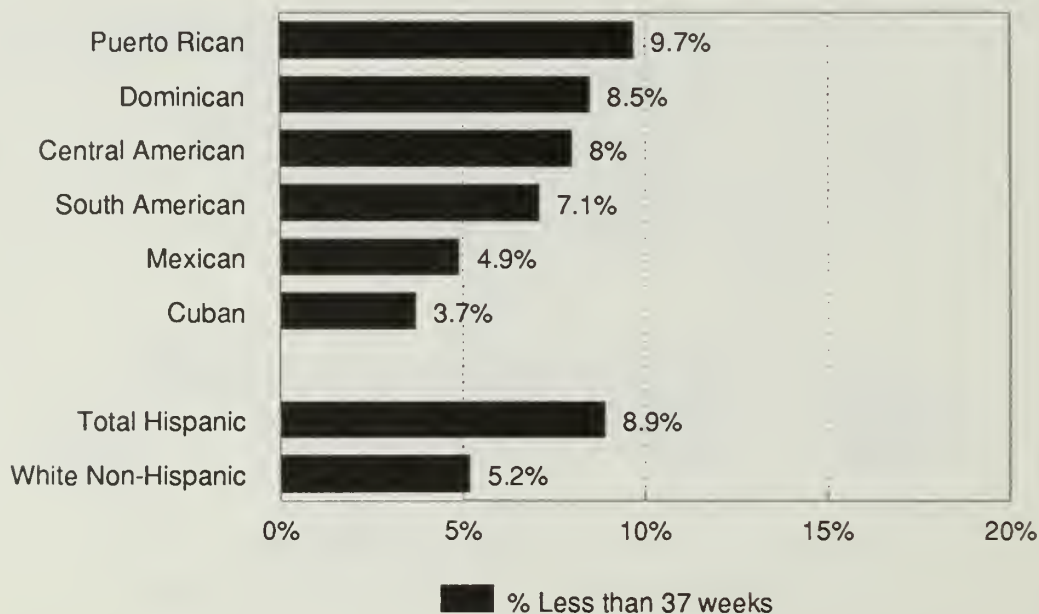
*What proportion of Hispanic births occur before the 37th week of gestation?*

**Gestational Age** Infants born before the 37th week of gestation are at greater risk for illness and death than full term infants. Of all Hispanic births, 8.9% were born before the 37th week compared to 5.2% of white non-Hispanic births.

Puerto Rican mothers had a higher proportion of early births, 9.7%, than other Hispanic subgroups. Gestation less than 37 weeks occurred in 8.5% of Dominican births, 8.0% of Central American births, and 7.1% of South American births. See Chapter 3, Table 5 for a complete description of gestational age by race and ethnicity.

Figure 11.

### Gestational Age Less Than 37 Weeks for Infants Born to Hispanic Mothers



Massachusetts: July 1986 - December 1987

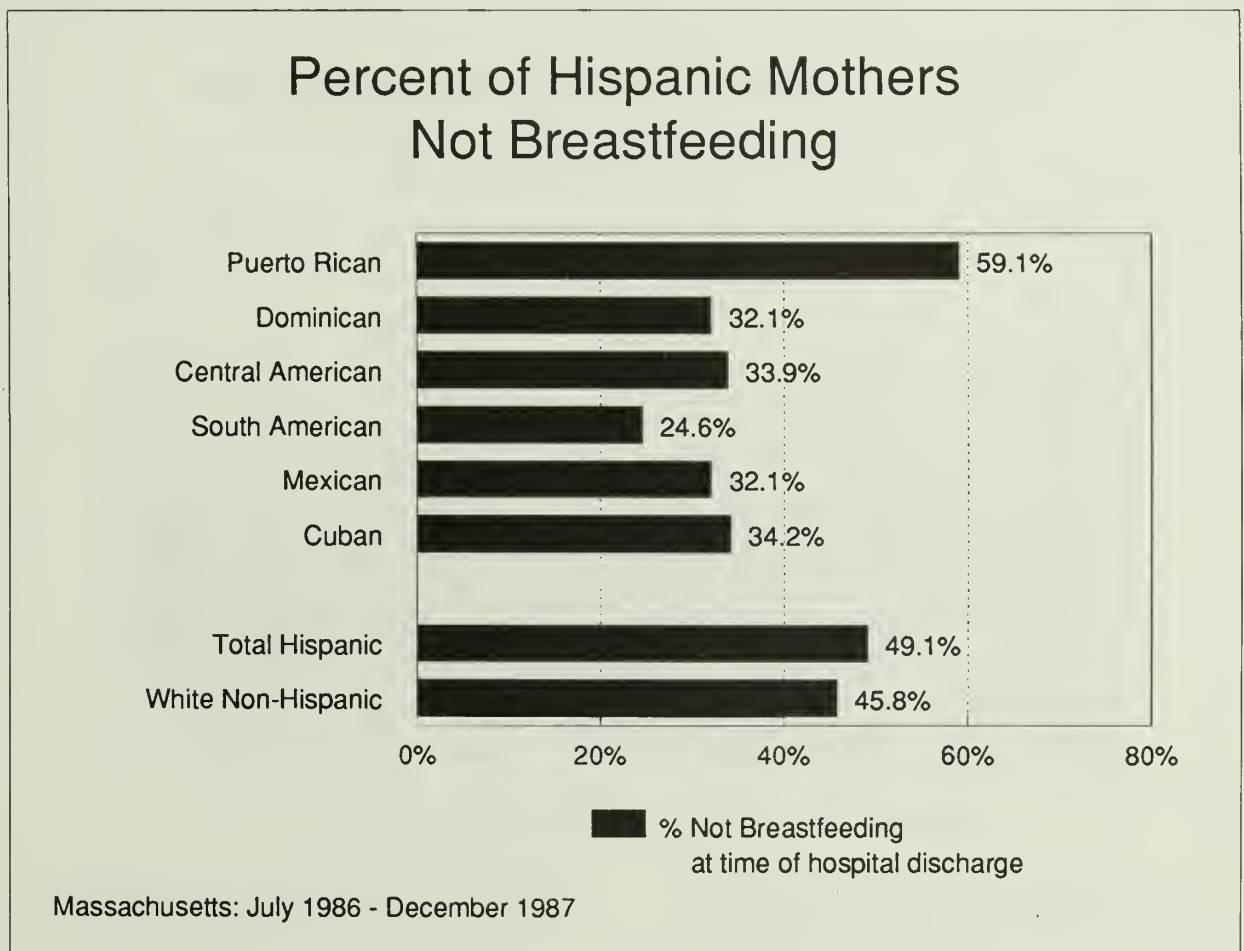


*What proportion of Hispanic mothers do not report breastfeeding at the time of hospital discharge?*

Breastfeeding confers maternal immunities to new born infants. Before leaving the hospital, a new mother is asked if she is breastfeeding. Among Hispanic mothers, 49.1% reported not breastfeeding compared to 45.8% of white non-Hispanic mothers. South American mothers reported not breastfeeding 24.6% of the time, compared to Puerto Rican mothers, 59.1%. See Chapter 3, Table 5 for a complete description of breastfeeding by race and ethnicity.

*Breastfeeding*

Figure 12.



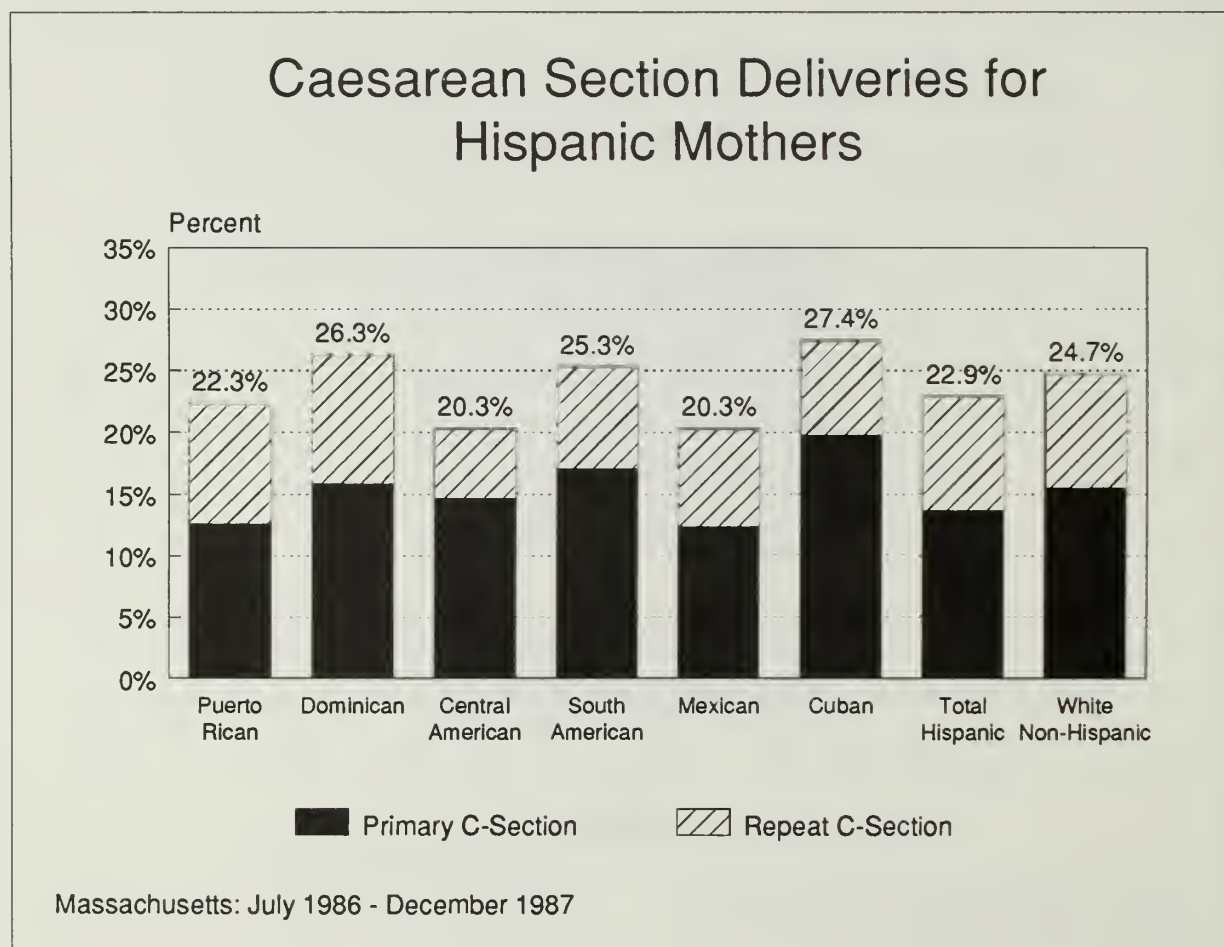
## Medical Care Utilization

*What proportion of Hispanic infants are delivered by caesarean section?*

### Caesarean Sections

22.9% of Hispanic births were caesarean section deliveries. The percent of caesarean section deliveries did not differ substantially between Hispanic and white non-Hispanic mothers (22.9% vs. 24.7%). Within Hispanic subgroups, Cuban mothers had the most primary caesarean deliveries, 19.8%, compared to Puerto Rican and Mexican mothers who had about 12% primary caesarean deliveries. See Chapter 3, Table 9 for a complete description of all types of deliveries by race and ethnicity.

Figure 13.

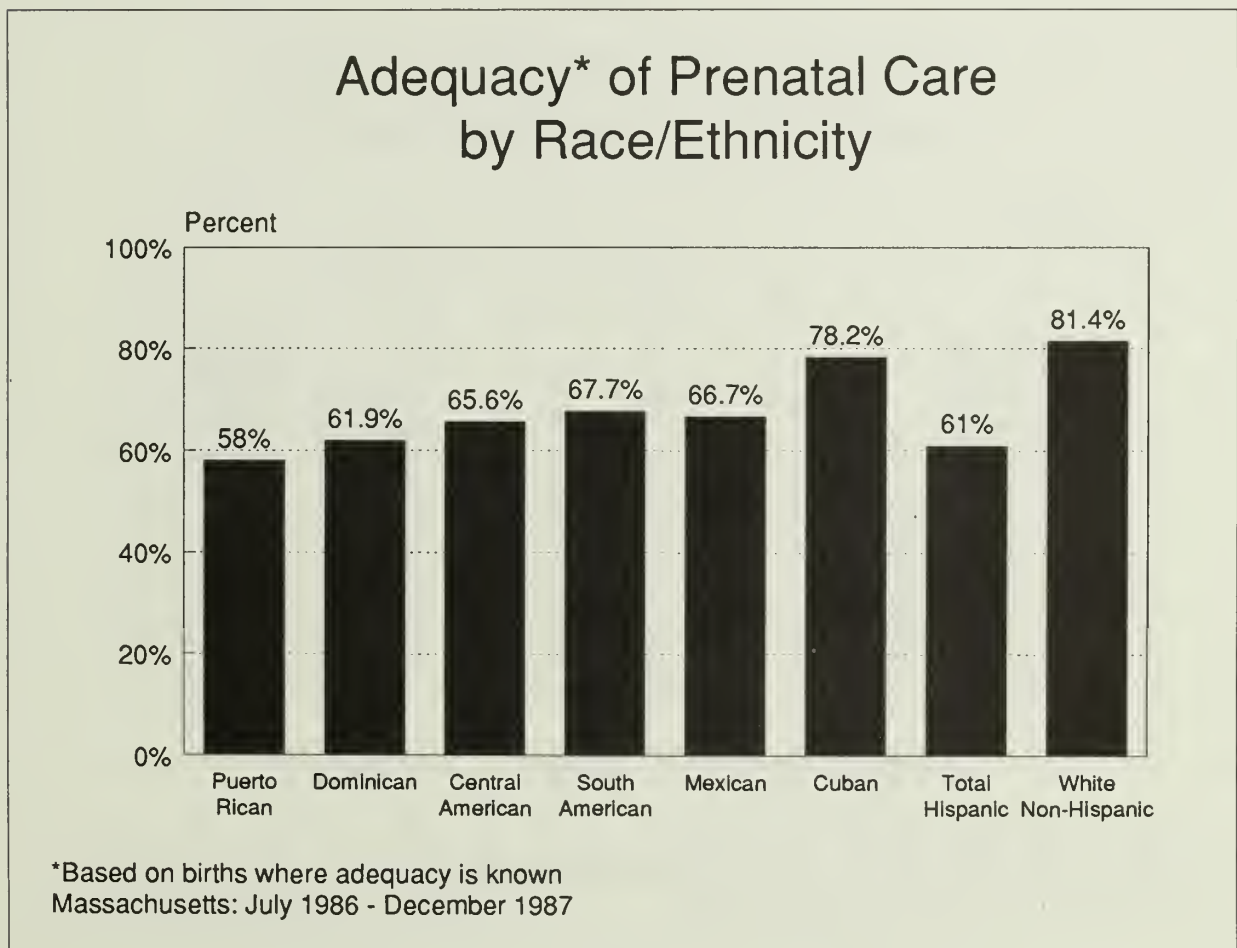


*What proportion of Hispanic mothers receive adequate levels of prenatal care?*

Adequacy of prenatal care is an objective measure of prenatal care utilization based on a combination of the number of prenatal care visits and the trimester in which visits begin. 61.0% of Hispanic mothers had adequate prenatal care. In comparison, 81.4% of white non-Hispanic mothers received adequate care. Among Hispanic subgroups, between 58% and 78% of mothers received adequate prenatal care. See Chapter 3, Table 10 for a complete description of all levels of adequate care by race and ethnicity.

*Prenatal Care Utilization*

**Figure 14.**

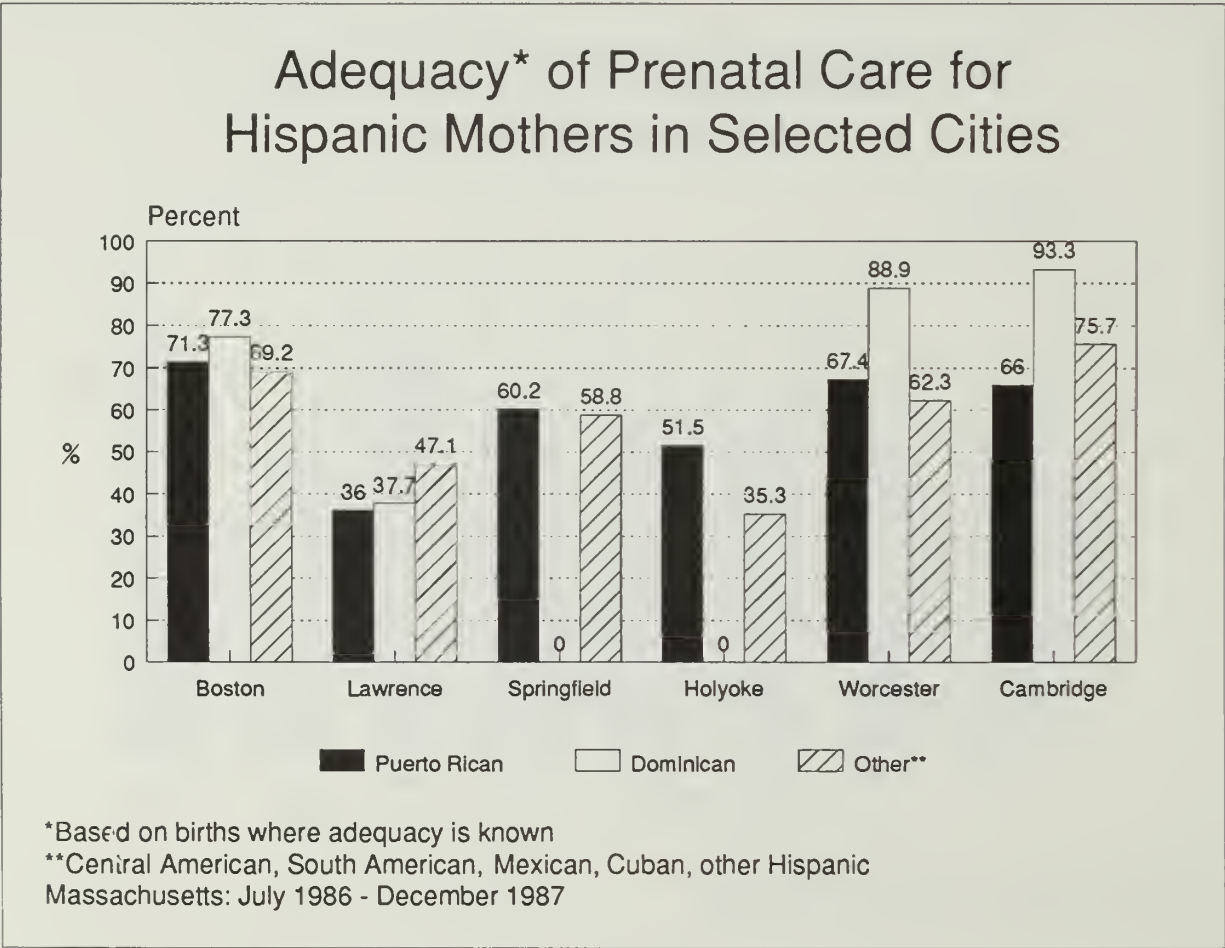


Does adequacy of prenatal care for subgroups of Hispanic mothers differ by city throughout Massachusetts?

Adequacy of prenatal care differed for Hispanic mothers in each city. In Boston, 71.3% of Puerto Rican mothers had adequate care, compared to 36.0% in Lawrence, and 60.0% in Springfield. 37.7% of the Dominican mothers in Lawrence had adequate care, compared to 88.9% of Dominican mothers in Worcester and 93.3% in Cambridge. In Springfield and Holyoke there were not enough Dominican mothers for this comparison. See the city-specific tables in Volume 2 for a complete description of adequacy of prenatal care in each city.

Prenatal Care Utilization in  
Different Cities

Figure 15.



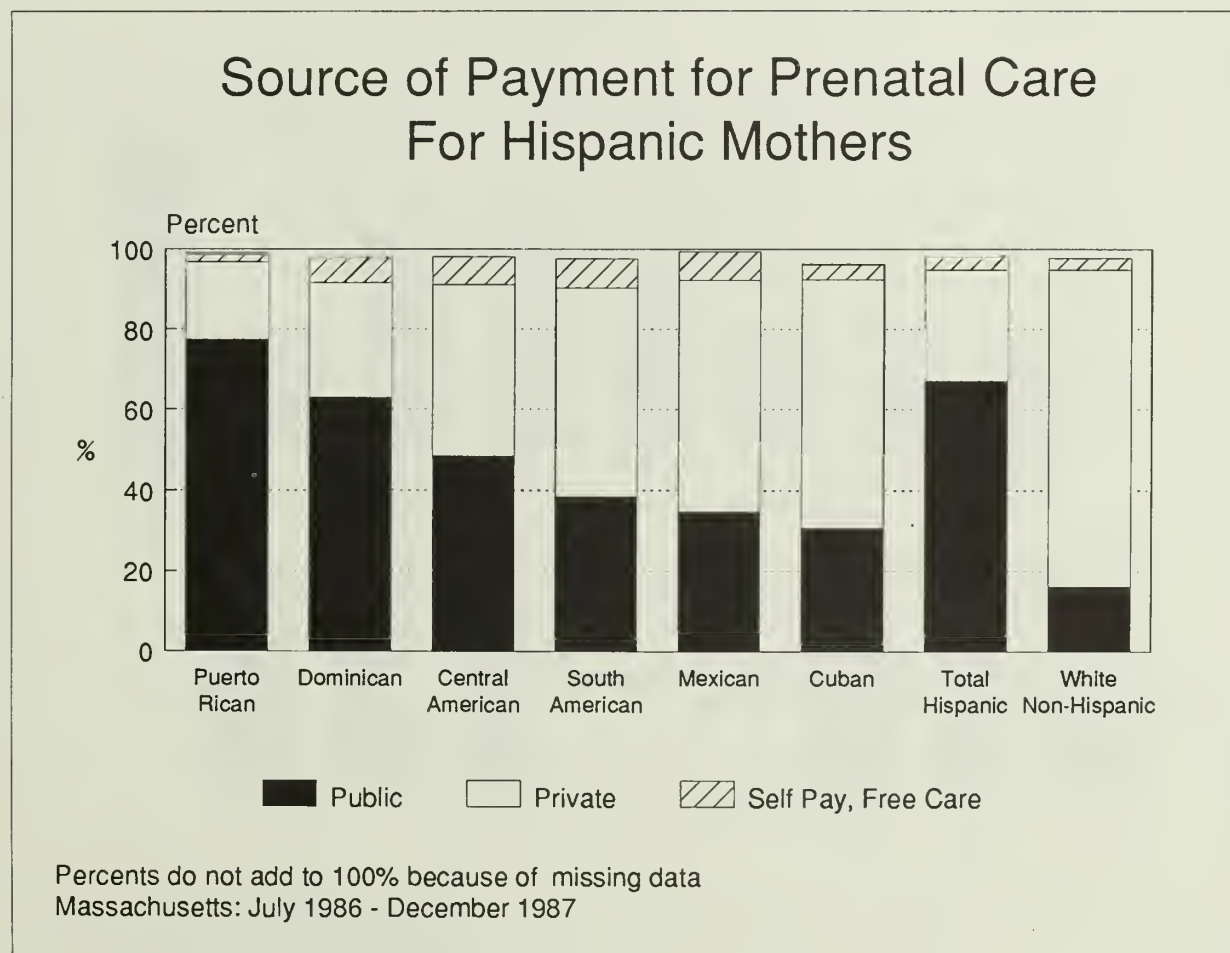
### *Who pays for prenatal care?*

Payment for prenatal care derives from many different sources, which can be grouped into two major categories: publically financed care and privately financed care. 67.1% of Hispanic mothers had publicly financed prenatal care compared to 16.2% of white non-Hispanic mothers.

#### *Payment for Prenatal Care*

Within the Hispanic community, large differences exist in the source of payment for prenatal care. 61.8% of Cuban mothers and 57.7% of Mexican mothers paid for prenatal care privately, compared to 19.3% of Puerto Rican mothers. See Chapter 3, Table 11 for a complete description of all sources of prenatal care payment by race and ethnicity.

**Figure 16.**



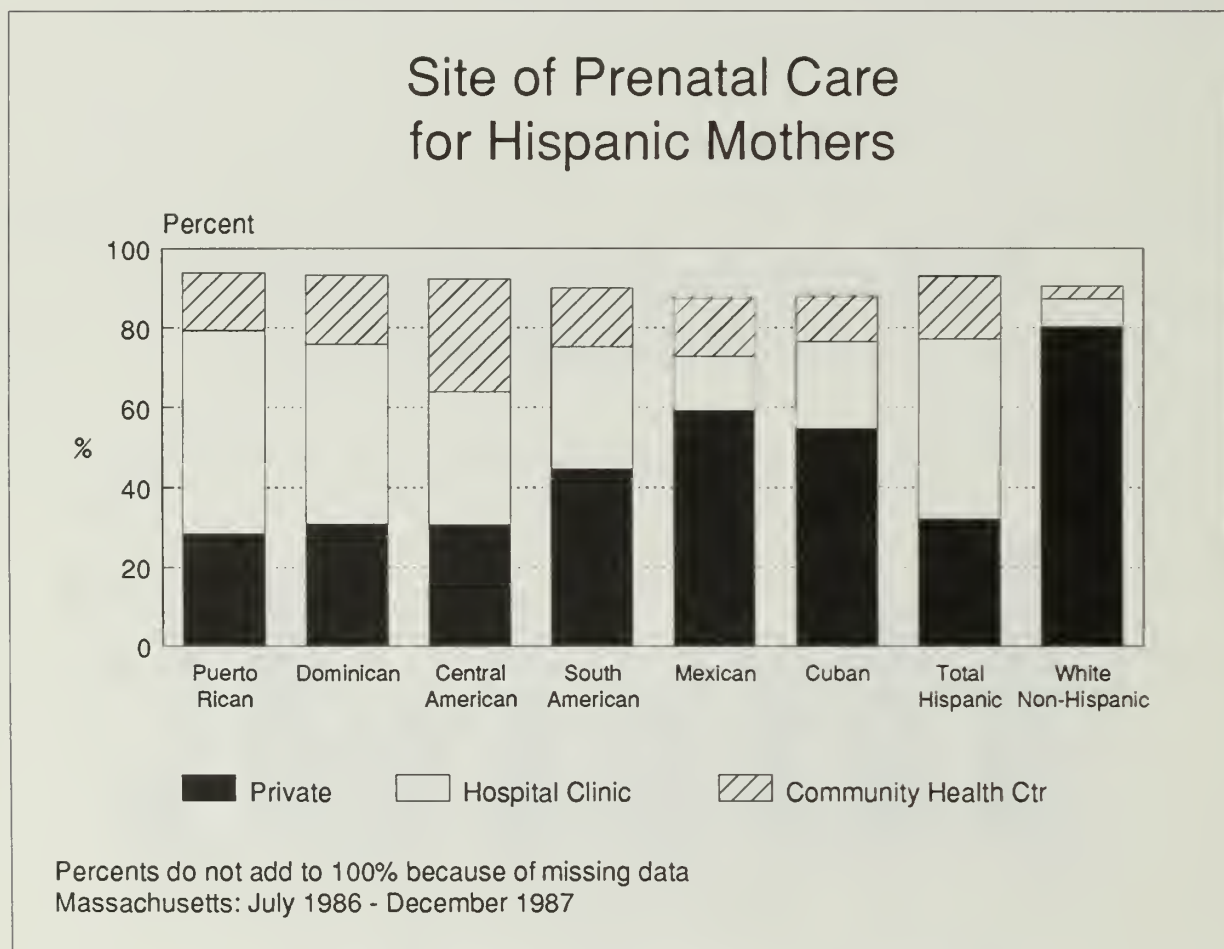


*Where do Hispanic mothers receive their prenatal care?*

*Site of Prenatal Care*

The three sites of prenatal care most often used by Hispanic mothers were hospital clinics (45.0%), private physician offices (32.1%), and community health centers (15.9%). Hospital clinics were used most often by Puerto Rican mothers (51.0%). Community health centers were used most often by Central American mothers (28.3%). See Chapter 3, Table 12 for a complete description of all sites of prenatal care by race and ethnicity.

Figure 17.



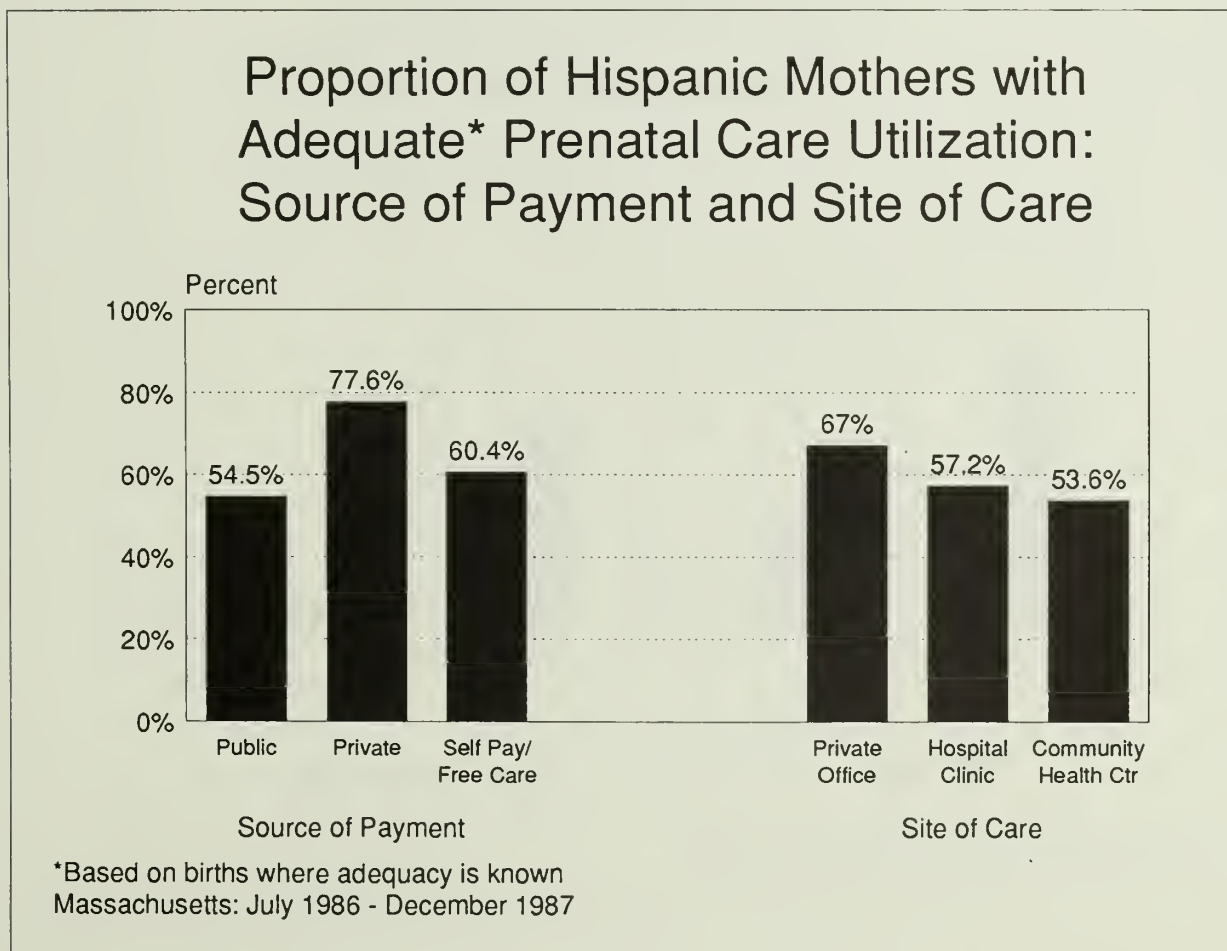
*Does the proportion of mothers who receive adequate prenatal care vary by source of prenatal care payment or by location of service delivery?*

The proportion of mothers who received adequate prenatal care differed by source of prenatal care payment. 77.6% of Hispanic mothers whose prenatal care was paid for through private sources received adequate prenatal care compared to 54.5% of Hispanic mothers whose prenatal care was paid for publicly.

*Prenatal Care Utilization,  
Payment for Prenatal Care,  
Site of Prenatal Care*

67.0% of Hispanic mothers who received their prenatal care in private physicians' offices received adequate prenatal care compared to 57.2% of Hispanic mothers who received their prenatal care at a hospital clinic, and 53.6% of Hispanic mothers who received their care at a community health center. See Chapter 3, Table 13 for a complete description of adequacy of care by prenatal source of payment and site of care.

**Figure 18.**

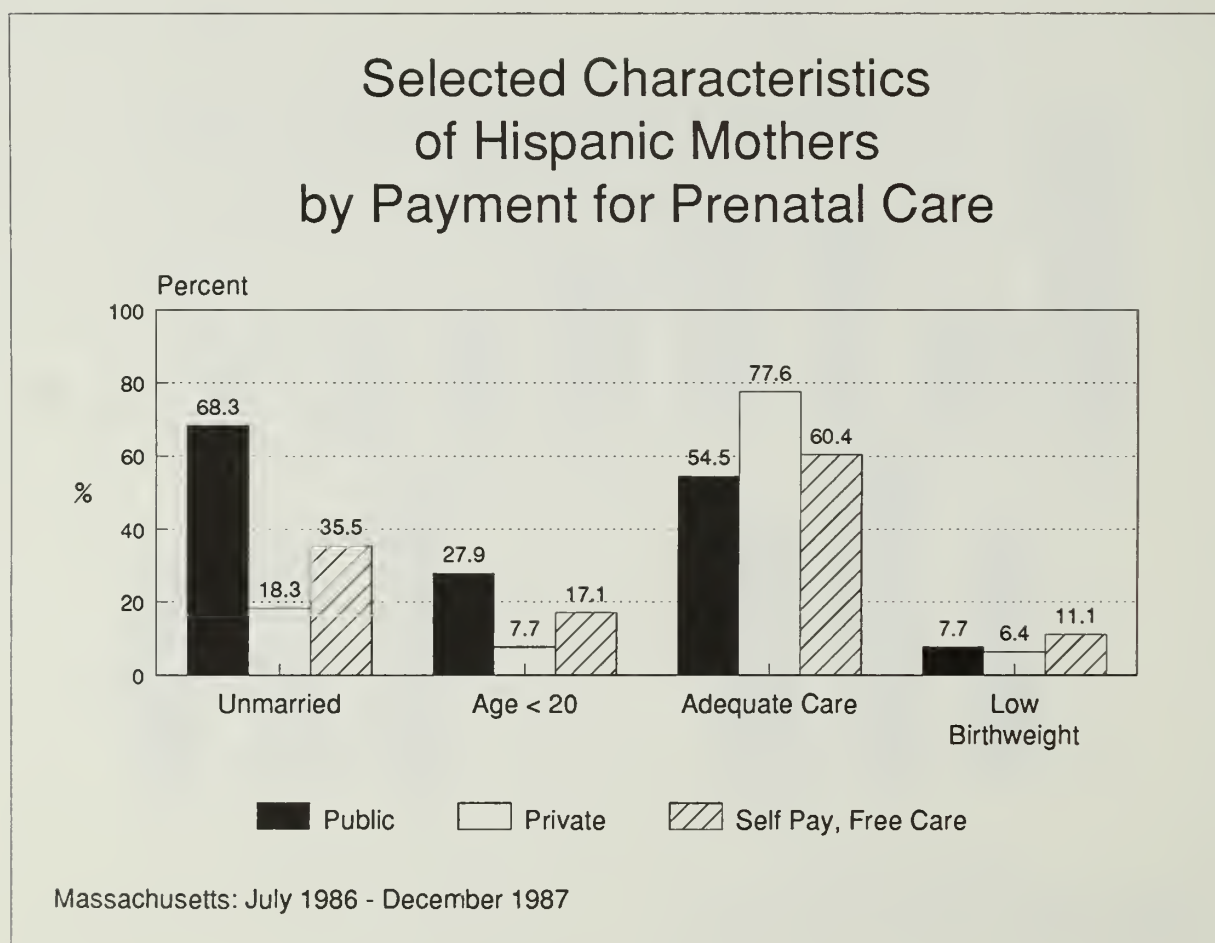


*How do marital status, age, adequacy of prenatal care and low birthweight differ for Hispanic mothers by prenatal care source of payment?*

*Payment for Prenatal Care  
and Mother's Characteristics*

Hispanic mothers whose prenatal care was paid for through public sources differ on several important characteristics from those whose prenatal care was paid for privately. Mothers whose care was financed publicly were more often unmarried (68.3%) than women whose prenatal care was financed privately (18.3%). Mothers with publicly financed prenatal care were almost four times more likely to be teenagers (27.9% vs. 7.7%), less likely to receive adequate prenatal care (54.5% vs. 77.6%), and had a slightly higher proportion of low birthweight deliveries (7.7% vs. 6.4%).

Figure 19.



***CHAPTER THREE:***  
***STATEWIDE TABLES***





TABLE 1. SUMMARY OF MATERNAL AND PERINATAL CHARACTERISTICS  
BY RACE/ETHNICITY  
Massachusetts: July 1986 - December 1987

|                    | Total<br>Births | Low<br>Birthweight | Maternal Characteristics |           |                                   |                             | Prenatal Care |                             |                                   |
|--------------------|-----------------|--------------------|--------------------------|-----------|-----------------------------------|-----------------------------|---------------|-----------------------------|-----------------------------------|
|                    |                 |                    | Age < 20<br>years        | Unmarried | Less than<br>8 years<br>Education | Non-USA<br>Mainland<br>Born | Adequate      | Site:<br>Hospital<br>Clinic | Insurance:<br>Public <sup>1</sup> |
|                    | Number          | %                  | %                        | %         | %                                 | %                           | %             | %                           | %                                 |
| State Total        | 124 939         | 6.4                | 8.3                      | 20.5      | 2.4                               | 15.3                        | 78.3          | 12.2                        | 22.9                              |
| Hispanic           | 8 145           | 7.7                | 21.7                     | 52.9      | 9.2                               | 73.1                        | 61.0          | 45.0                        | 67.1                              |
| Puerto Rican       | 5 098           | 8.5                | 27.8                     | 63.6      | 8.4                               | 68.1                        | 58.0          | 51.0                        | 77.5                              |
| Dominican          | 1 022           | 6.4                | 10.3                     | 38.3      | 8.1                               | 91.8                        | 61.9          | 44.9                        | 62.9                              |
| Central American   | 717             | 7.0                | 12.1                     | 41.5      | 21.1                              | 85.2                        | 65.6          | 33.1                        | 48.5                              |
| South American     | 632             | 6.0                | 5.2                      | 21.4      | 6.7                               | 94.0                        | 67.7          | 30.4                        | 38.3                              |
| Mexican            | 184             | 5.4                | 15.2                     | 27.2      | 12.1                              | 43.5                        | 66.7          | 13.6                        | 34.6                              |
| Cuban              | 162             | *                  | 9.3                      | 24.1      | *                                 | 70.2                        | 78.2          | 21.7                        | 30.6                              |
| Other Hispanic     | 330             | 7.6                | 25.0                     | 46.4      | 4.9                               | 43.9                        | 69.4          | 34.9                        | 52.6                              |
| White Non-Hispanic | 102 282         | 5.5                | 6.5                      | 14.7      | 1.1                               | 6.5                         | 81.4          | 7.1                         | 16.2                              |
| Black Non-Hispanic | 8 724           | 12.8               | 17.6                     | 58.9      | 4.0                               | 30.4                        | 60.6          | 35.7                        | 54.0                              |
| Other              | 3 960           | 7.1                | 6.8                      | 17.0      | 21.1                              | 85.9                        | 67.9          | 22.9                        | 35.5                              |

\* Percents based on fewer than 5 are not calculated.

<sup>1</sup> Medicaid, Healthy Start, Medicare, Other Government, Workers' Compensation.

TABLE 2. TEN CITIES WITH THE LARGEST NUMBER OF HISPANIC BIRTHS  
Massachusetts: July 1986 - December 1987

|              | Total   | Race/Ethnic Groups |                |                    |                |       |                |                |                | Hispanics    |                |           |                |                  |                |                |                |
|--------------|---------|--------------------|----------------|--------------------|----------------|-------|----------------|----------------|----------------|--------------|----------------|-----------|----------------|------------------|----------------|----------------|----------------|
|              |         | White Non-Hispanic |                | Black Non-Hispanic |                | Other |                | Total Hispanic |                | Puerto Rican |                | Dominican |                | Central American |                | Other Hispanic |                |
|              |         | #                  | % <sup>2</sup> | #                  | % <sup>2</sup> | #     | % <sup>2</sup> | #              | % <sup>2</sup> | #            | % <sup>3</sup> | #         | % <sup>3</sup> | #                | % <sup>3</sup> | #              | % <sup>3</sup> |
| State Total  | 124 939 | 102282             | 81.9           | 8 724              | 7.0            | 3 960 | 3.2            | 8 145          | 6.5            | 5 098        | 62.6           | 1 022     | 12.5           | 717              | 8.8            | 1 308          | 16.1           |
| Boston       | 13 934  | 5 561              | 40.6           | 5 104              | 36.6           | 882   | 6.3            | 1 979          | 14.2           | 1 022        | 51.6           | 324       | 16.4           | 294              | 14.9           | 339            | 17.1           |
| Lawrence     | 2 299   | 1 072              | 46.6           | 33                 | 1.4            | 80    | 3.5            | 988            | 43.0           | 522          | 52.8           | 392       | 39.7           | 14               | 1.4            | 60             | 6.0            |
| Springfield  | 4 121   | 2 206              | 53.5           | 924                | 22.4           | 59    | 1.4            | 906            | 22.0           | 846          | 93.4           | 7         | 0.8            | 13               | 1.4            | 40             | 4.4            |
| Holyoke      | 1 339   | 625                | 46.7           | 40                 | 3.0            | 16    | 1.2            | 653            | 48.8           | 632          | 96.8           | *         | *              | *                | *              | 15             | 2.3            |
| Worcester    | 3 894   | 3 089              | 79.3           | 182                | 4.7            | 118   | 3.0            | 458            | 11.8           | 379          | 82.8           | 18        | 3.9            | 6                | 1.3            | 55             | 12.0           |
| Lowell       | 2 905   | 2 034              | 70.0           | 55                 | 1.9            | 419   | 14.4           | 374            | 12.9           | 321          | 85.8           | *         | *              | 9                | 2.4            | 40             | 10.7           |
| Chelsea      | 758     | 352                | 46.4           | 30                 | 4.0            | 83    | 11.0           | 277            | 36.5           | 163          | 58.8           | 9         | 3.2            | 65               | 23.5           | 40             | 14.4           |
| Lynn         | 2 220   | 1 632              | 73.5           | 182                | 8.2            | 118   | 5.3            | 193            | 8.7            | 65           | 33.7           | 85        | 44.0           | 14               | 7.3            | 29             | 15.1           |
| Cambridge    | 1 656   | 1 027              | 62.0           | 280                | 16.9           | 148   | 8.9            | 167            | 10.1           | 62           | 37.1           | 17        | 10.2           | 42               | 25.2           | 46             | 27.5           |
| New Bedford  | 2 281   | 1 897              | 83.2           | 216                | 9.5            | 17    | 0.7            | 151            | 6.6            | 132          | 87.4           | 6         | 4.0            | *                | *              | 12             | 7.9            |
| Other Cities | 89 532  | 82 787             | 92.5           | 1 678              | 1.9            | 2 020 | 2.3            | 1 999          | 2.2            | 954          | 47.7           | 157       | 7.9            | 256              | 12.8           | 632            | 31.6           |

\* Numbers and percents based on fewer than 5 are not calculated.

<sup>1</sup> Order by number of Hispanic births.

<sup>2</sup> Percent of all births within each hospital.

<sup>3</sup> Percent of Hispanic births within each hospital.

TABLE 3. DISTRIBUTION OF BIRTHS BY RACE/ETHNICITY FOR  
MATERNITY HOSPITALS WITH THE LARGEST NUMBER OF HISPANIC BIRTHS  
Massachusetts: July 1986 - December 1987

| Hospitals                | Total  | Race/Ethnic Groups |                |                    |                |       |                |                |                | Hispanics    |                |           |                |                  |                |                |                |
|--------------------------|--------|--------------------|----------------|--------------------|----------------|-------|----------------|----------------|----------------|--------------|----------------|-----------|----------------|------------------|----------------|----------------|----------------|
|                          |        | White Non-Hispanic |                | Black Non-Hispanic |                | Other |                | Total Hispanic |                | Puerto Rican |                | Dominican |                | Central American |                | Other Hispanic |                |
|                          |        | #                  | % <sup>1</sup> | #                  | % <sup>1</sup> | #     | % <sup>1</sup> | #              | % <sup>1</sup> | #            | % <sup>2</sup> | #         | % <sup>2</sup> | #                | % <sup>2</sup> | #              | % <sup>2</sup> |
| Brigham & Women's        | 14 337 | 9 912              | 69.1           | 2 087              | 14.6           | 617   | 4.3            | 1 333          | 9.3            | 668          | 50.1           | 270       | 20.3           | 120              | 9.0            | 275            | 20.6           |
| Bay State                | 8 285  | 5 917              | 71.4           | 966                | 11.7           | 101   | 1.2            | 1 238          | 14.9           | 1 144        | 92.4           | 10        | 0.8            | 19               | 1.5            | 65             | 5.3            |
| Lawrence General         | 2 261  | 1 272              | 56.3           | 18                 | 0.8            | 84    | 3.7            | 715            | 31.6           | 378          | 52.9           | 285       | 39.9           | 10               | 1.4            | 42             | 5.9            |
| Boston City              | 2 545  | 357                | 14.0           | 1 679              | 66.0           | 56    | 2.2            | 450            | 17.7           | 236          | 52.4           | 36        | 8.0            | 108              | 24.0           | 70             | 15.6           |
| Providence               | 2 029  | 1 529              | 75.4           | 30                 | 1.5            | 21    | 1.0            | 443            | 21.8           | 424          | 95.7           | *         | *              | 5                | 1.1            | 11             | 2.5            |
| Lowell General           | 3 268  | 2 436              | 74.5           | 43                 | 1.3            | 406   | 12.4           | 360            | 11.0           | 303          | 84.2           | 9         | 2.5            | 8                | 2.2            | 40             | 11.1           |
| Worcester Memor.         | 4 748  | 4 211              | 88.7           | 124                | 2.6            | 72    | 1.5            | 319            | 6.7            | 257          | 80.6           | 11        | 3.5            | 10               | 3.1            | 41             | 12.9           |
| St. Elizabeth's          | 1 766  | 1 073              | 60.8           | 153                | 8.7            | 235   | 13.3           | 305            | 17.3           | 117          | 38.4           | 6         | 2.0            | 95               | 31.2           | 87             | 28.5           |
| Bon Secours <sup>3</sup> | 1 168  | 854                | 73.1           | 15                 | 1.3            | 22    | 1.9            | 277            | 23.7           | 150          | 54.2           | 102       | 36.8           | *                | *              | 22             | 7.9            |
| Beth Israel              | 6 629  | 4 542              | 68.5           | 1 032              | 15.6           | 641   | 9.7            | 272            | 4.1            | 98           | 36.0           | 24        | 8.8            | 53               | 19.5           | 97             | 35.7           |
| St. Margaret's           | 5 107  | 3 807              | 74.5           | 778                | 15.2           | 168   | 3.3            | 268            | 5.3            | 165          | 61.6           | 32        | 11.9           | 29               | 10.8           | 42             | 15.7           |
| Other Hospitals          | 72 796 | 66 372             | 91.2           | 1 799              | 2.5            | 1 537 | 2.3            | 2 165          | 3.0            | 1 158        | 53.5           | 234       | 10.8           | 257              | 11.9           | 516            | 23.9           |

\* Numbers and percents based on fewer than 5 are not calculated.

<sup>1</sup> Percent of total births within each hospital.

<sup>2</sup> Percent of total Hispanic births within each hospital.

<sup>3</sup> October 1988, name changed to Holy Family Hospital and Medical Center.

TABLE 4. AGE DISTRIBUTION OF MOTHERS BY RACE/ETHNICITY  
Massachusetts: July 1986 - December 1987

|                    | AGE (IN YEARS) |     |     |     |      |     |      |     |      |     |      |     |       |      |       |      |       |      |       |      |
|--------------------|----------------|-----|-----|-----|------|-----|------|-----|------|-----|------|-----|-------|------|-------|------|-------|------|-------|------|
|                    | < 15           |     | 15  |     | 16   |     | 17   |     | 18   |     | 19   |     | 20-24 |      | 25-29 |      | 30-34 |      | 35+   |      |
|                    | #              | %   | #   | %   | #    | %   | #    | %   | #    | %   | #    | %   | #     | %    | #     | %    | #     | %    | #     | %    |
| State Total        | 142            | 0.1 | 491 | 0.4 | 1159 | 0.9 | 1927 | 1.5 | 2878 | 2.3 | 3790 | 3.0 | 27727 | 22.2 | 42058 | 33.7 | 32171 | 25.8 | 12480 | 10.0 |
| Hispanic           | 46             | 0.5 | 117 | 1.4 | 266  | 3.3 | 355  | 4.4 | 446  | 5.5 | 536  | 6.6 | 2 910 | 35.8 | 1 966 | 24.2 | 1 028 | 12.6 | 459   | 5.6  |
| Puerto Rican       | 35             | 0.7 | 92  | 1.8 | 225  | 4.4 | 299  | 5.9 | 358  | 7.0 | 408  | 8.0 | 1 953 | 38.4 | 1 084 | 21.3 | 443   | 8.7  | 191   | 3.8  |
| Dominican          | *              | *   | 8   | 0.8 | 14   | 1.4 | 18   | 1.8 | 21   | 2.1 | 39   | 3.8 | 351   | 34.4 | 281   | 27.6 | 206   | 20.2 | 76    | 7.4  |
| Central American   | *              | *   | 7   | 1.0 | 7    | 1.0 | 11   | 1.5 | 18   | 2.5 | 42   | 5.9 | 248   | 34.6 | 213   | 29.7 | 111   | 15.5 | 58    | 8.1  |
| South American     | 0              | 0   | *   | *   | *    | *   | *    | *   | 9    | 1.4 | 14   | 2.2 | 169   | 26.7 | 211   | 33.4 | 146   | 23.1 | 73    | 11.6 |
| Mexican            | 0              | 0   | *   | *   | *    | *   | 5    | 2.7 | 12   | 6.5 | 6    | 3.3 | 55    | 29.9 | 46    | 25.0 | 41    | 22.3 | 14    | 7.6  |
| Cuban              | *              | *   | 0   | 0   | *    | *   | *    | *   | 5    | 3.1 | *    | *   | 46    | 28.4 | 45    | 27.8 | 38    | 23.5 | 18    | 11.1 |
| Other Hispanic     | *              | *   | *   | *   | 12   | 3.6 | 15   | 4.6 | 23   | 7.0 | 24   | 7.3 | 88    | 26.8 | 86    | 26.2 | 43    | 13.1 | 29    | 8.8  |
| White Non-Hispanic | 40             | 0.0 | 232 | 0.3 | 617  | 0.6 | 1171 | 1.2 | 1956 | 1.9 | 2622 | 2.6 | 21060 | 20.6 | 35769 | 35.0 | 28081 | 27.1 | 10650 | 10.4 |
| Black Non-Hispanic | 44             | 0.5 | 119 | 1.4 | 215  | 2.5 | 309  | 3.5 | 363  | 4.2 | 481  | 5.5 | 2 658 | 30.5 | 2 375 | 27.2 | 1 496 | 17.2 | 657   | 7.5  |
| Asian              | 7              | 0.2 | 11  | 0.3 | 32   | 0.8 | 59   | 1.5 | 61   | 1.5 | 100  | 2.5 | 722   | 18.6 | 1 367 | 34.6 | 1 101 | 27.8 | 495   | 12.5 |

\* Numbers and percents based on fewer than 5 are not calculated.  
Percent based on total in race/ethnic group.

TABLE 5. MATERNAL RISK CHARACTERISTICS AND ADVERSE BIRTH OUTCOMES BY RACE/ETHNICITY  
Massachusetts: July 1986 - December 1987

|                                       | White Non-Hispanic | Black Non-Hispanic | Other | Total Hispanic | Puerto Rican | Dominican | Central American | Other Hispanic |
|---------------------------------------|--------------------|--------------------|-------|----------------|--------------|-----------|------------------|----------------|
| RISK CHARACTERISTICS                  |                    |                    |       |                |              |           |                  |                |
| Unmarried                             | 14.7               | 58.9               | 17.0  | 52.9           | 63.6         | 38.3      | 41.5             | 28.8           |
| #                                     | 14 966             | 5 126              | 669   | 4 296          | 3 231        | 391       | 297              | 377            |
| Smoking                               | 18.1               | 12.0               | 4.5   | 11.0           | 14.3         | 3.0       | 4.0              | 8.2            |
| #                                     | 18 551             | 1 044              | 178   | 899            | 731          | 31        | 29               | 108            |
| Parity > 3                            | 6.3                | 12.1               | 10.3  | 11.8           | 13.6         | 8.6       | 10.7             | 7.8            |
| #                                     | 6 399              | 1 056              | 406   | 962            | 695          | 88        | 77               | 102            |
| Late or No Prenatal Care <sup>2</sup> | 13.4               | 32.9               | 25.4  | 29.4           | 32.8         | 21.8      | 26.9             | 23.7           |
| #                                     | 13 748             | 2 872              | 1 006 | 2 398          | 1 672        | 223       | 193              | 310            |
| Conditions of Labor <sup>3</sup>      | 14.3               | 14.2               | 9.3   | 14.5           | 15.3         | 13.0      | 12.1             | 13.9           |
| #                                     | 14 579             | 1 237              | 368   | 1 183          | 781          | 133       | 87               | 182            |
| Not Breastfeeding                     | 45.8               | 54.0               | 51.6  | 49.1           | 59.1         | 32.1      | 33.9             | 31.1           |
| #                                     | 45 843             | 4 647              | 1 996 | 3 899          | 2 939        | 314       | 239              | 407            |
| ADVERSE OUTCOMES                      |                    |                    |       |                |              |           |                  |                |
| Gestation < 37 Weeks                  | 5.2                | 10.7               | 7.5   | 8.9            | 9.7          | 8.5       | 8.0              | 6.5            |
| #                                     | 5 318              | 933                | 296   | 721            | 492          | 87        | 57               | 85             |
| Low Birthweight                       | 5.5                | 12.8               | 7.1   | 7.7            | 8.5          | 6.4       | 7.0              | 5.8            |
| #                                     | 5 570              | 1 112              | 282   | 624            | 433          | 65        | 50               | 76             |
| Apgar < 6 <sup>4</sup>                | 1.5                | 3.3                | 2.2   | 2.1            | 2.1          | 2.1       | 2.5              | 1.8            |
| #                                     | 1 538              | 289                | 88    | 171            | 108          | 21        | 18               | 24             |

\* Numbers and percents based on fewer than 5 are not calculated.

<sup>1</sup> Percent based on total in race/ethnic group.<sup>2</sup> Onset of prenatal care between 4th and 9th months of pregnancy, or no prenatal care.<sup>3</sup> One or more of these conditions: preterm labor, preeclampsia, prolonged pregnancy, premature labor.<sup>4</sup> 5-minute Apgar Score.TABLE 6. MATERNAL EDUCATION BY RACE/ETHNICITY  
Massachusetts: July 1986 - December 1987

|                    | Less than 8th Grade | 8 - 11th Grade | 12th Grade or more |
|--------------------|---------------------|----------------|--------------------|
|                    | %                   | %              | %                  |
| State Total        | 2.4                 | 13.9           | 83.6               |
| Hispanic           | 9.2                 | 39.8           | 51.1               |
| Puerto Rican       | 8.4                 | 48.5           | 43.0               |
| Dominican          | 8.1                 | 28.5           | 63.4               |
| Central American   | 21.1                | 24.6           | 54.3               |
| South American     | 6.7                 | 18.3           | 75.0               |
| Mexican            | 12.1                | 18.8           | 69.1               |
| Cuban              | *                   | 17.1           | 82.3               |
| Other Hispanic     | 4.9                 | 31.8           | 63.3               |
| White Non-Hispanic | 1.1                 | 10.8           | 88.1               |
| Black Non-Hispanic | 4.0                 | 26.2           | 69.8               |
| Other              | 21.1                | 17.7           | 61.2               |

\* Percents based on fewer than 5 are not calculated.



TABLE 7. PLACE OF BIRTH FOR HISPANIC MOTHERS  
Massachusetts: July 1986 - December 1987

|                       | Total Births |     | Puerto Rico |                | Dominican Republic |      | Central America |      | South America |      | Mexico |     | Cuba |     | Other Hispanic |     |
|-----------------------|--------------|-----|-------------|----------------|--------------------|------|-----------------|------|---------------|------|--------|-----|------|-----|----------------|-----|
|                       | #            | %   | #           | % <sup>1</sup> | #                  | %    | #               | %    | #             | %    | #      | %   | #    | %   | #              | %   |
| Non-USA Mainland Born | 5 948        | 100 | 3 470       | 58.3           | 936                | 15.7 | 609             | 10.2 | 594           | 10.0 | 80     | 1.3 | 113  | 1.9 | 144            | 2.4 |
| USA Mainland Born     | 2 190        | 100 | 1 626       | 74.3           | 84                 | 3.8  | 106             | 4.8  | 38            | 1.7  | 104    | 4.8 | 48   | 2.2 | 184            | 8.4 |

\* Numbers and percents based on fewer than 5 are not calculated.

<sup>1</sup> Percents based on Row Total, i.e., either Non-USA Mainland Born or USA Mainland Born.

TABLE 8. RISK CHARACTERISTICS AND ADVERSE BIRTH OUTCOMES FOR HISPANIC MOTHERS  
BY PLACE OF BIRTH  
Massachusetts: July 1986 - December 1987

|                                       |                | Puerto Rican     |                 | Dominican |      | Central American |      | Other Hispanic |      |
|---------------------------------------|----------------|------------------|-----------------|-----------|------|------------------|------|----------------|------|
|                                       |                | NMB <sup>1</sup> | MB <sup>1</sup> | NMB       | MB   | NMB              | MB   | NMB            | MB   |
| RISK CHARACTERISTICS                  |                |                  |                 |           |      |                  |      |                |      |
| < 20 years                            | % <sup>2</sup> | 21.9             | 40.5            | 7.7       | 38.1 | 9.7              | 26.4 | 7.3            | 23.8 |
|                                       | #              | 759              | 658             | 72        | 32   | 59               | 28   | 68             | 89   |
| Unmarried                             | %              | 61.6             | 68.0            | 37.3      | 51.2 | 41.4             | 41.5 | 23.3           | 42.2 |
|                                       | #              | 2 130            | 1 100           | 348       | 43   | 251              | 44   | 217            | 158  |
| < 8 years Education                   | %              | 9.7              | 5.9             | 8.7       | *    | 24.4             | *    | 7.7            | 2.7  |
|                                       | #              | 319              | 93              | 66        | *    | 144              | *    | 69             | 10   |
| Smoking                               | %              | 11.9             | 19.5            | 2.7       | 7.1  | 1.6              | 17.9 | 5.2            | 16.0 |
|                                       | #              | 414              | 317             | 25        | 6    | 10               | 19   | 48             | 60   |
| Parity > 3                            | %              | 16.0             | 8.7             | 8.8       | 7.1  | 12.2             | *    | 7.7            | 8.0  |
|                                       | #              | 554              | 141             | 82        | 6    | 74               | *    | 72             | 30   |
| Late or No Prenatal Care <sup>3</sup> | %              | 32.0             | 34.5            | 21.4      | 26.2 | 27.9             | 20.8 | 23.6           | 24.1 |
|                                       | #              | 1 110            | 561             | 200       | 22   | 170              | 22   | 220            | 90   |
| Conditions of Labor <sup>4</sup>      | %              | 15.4             | 15.1            | 13.7      | 6.0  | 11.7             | 15.1 | 15.0           | 11.2 |
|                                       | #              | 534              | 246             | 128       | 5    | 71               | 16   | 140            | 42   |
| Not Breastfeeding                     | %              | 57.2             | 63.1            | 31.5      | 38.3 | 30.2             | 55.8 | 26.7           | 43.5 |
|                                       | #              | 1 935            | 1 003           | 282       | 31   | 181              | 58   | 245            | 161  |
| ADVERSE OUTCOMES                      |                |                  |                 |           |      |                  |      |                |      |
| Gestation < 37 Weeks                  | %              | 9.8              | 9.2             | 8.1       | 11.9 | 8.1              | 7.6  | 6.8            | 5.9  |
|                                       | #              | 341              | 150             | 76        | 10   | 49               | 8    | 63             | 22   |
| Low Birthweight                       | %              | 8.3              | 8.9             | 6.0       | 9.5  | 7.1              | 6.6  | 5.7            | 5.6  |
|                                       | #              | 287              | 145             | 56        | 8    | 43               | 7    | 53             | 21   |
| Apgar < 6 <sup>5</sup>                | %              | 2.4              | 1.5             | 1.7       | *    | 2.5              | *    | 1.5            | 1.9  |
|                                       | #              | 82               | 25              | 16        | *    | 15               | *    | 14             | 7    |

\* Numbers and percents based on fewer than 5 are not calculated.

<sup>1</sup> NMB: Non-USA Mainland Born; MB: USA Mainland Born.

<sup>2</sup> Percents based on Column Total, i.e., either Non-USA Mainland Born or USA Mainland Born

<sup>3</sup> Onset of prenatal care between 4th and 9th months of pregnancy, or no prenatal care.

<sup>4</sup> One or more of these conditions: preterm labor, preeclampsia, prolonged pregnancy or premature labor.

<sup>5</sup> 5-minute Apgar score.



TABLE 9. METHOD OF DELIVERY BY RACE/ETHNICITY  
Massachusetts: July 1986 - December 1987

|                    | Total Births | Spontaneous    | Primary C-Section | Repeat C-Section | Forceps | Vaginal After Prior C-Section | Other |
|--------------------|--------------|----------------|-------------------|------------------|---------|-------------------------------|-------|
|                    | Number       | % <sup>1</sup> | %                 | %                | %       | %                             | %     |
| State Total        | 118 958      | 66.1           | 15.3              | 9.0              | 8.4     | 1.0                           | 0.2   |
| Hispanic           | 7 705        | 69.0           | 13.7              | 9.2              | 6.9     | 1.0                           | 0.2   |
| Puerto Rican       | 4 856        | 69.8           | 12.6              | 9.7              | 6.9     | 0.9                           | 0.1   |
| Dominican          | 921          | 67.5           | 15.9              | 10.4             | 5.3     | 0.8                           | *     |
| Central American   | 685          | 72.1           | 14.7              | 5.6              | 6.3     | 1.0                           | *     |
| South American     | 596          | 64.4           | 17.1              | 8.2              | 8.1     | 1.9                           | *     |
| Mexican            | 177          | 67.2           | 12.4              | 7.9              | 9.6     | *                             | *     |
| Cuban              | 157          | 61.8           | 19.8              | 7.6              | 8.9     | *                             | 0     |
| Other Hispanic     | 313          | 69.0           | 14.4              | 8.6              | 7.7     | 0                             | *     |
| White Non-Hispanic | 98 032       | 65.4           | 15.5              | 9.2              | 8.8     | 1.0                           | 0.2   |
| Black Non-Hispanic | 7 988        | 69.2           | 16.3              | 7.8              | 5.4     | 1.1                           | 0.2   |
| Other              | 3 730        | 72.6           | 13.0              | 5.9              | 7.5     | 0.9                           | 0.2   |

\* Percents based on fewer than 5 are not calculated.  
<sup>1</sup> Percents based on total in race/ethnic group.

TABLE 10. ADEQUACY OF PRENATAL CARE UTILIZATION BY RACE/ETHNICITY  
Massachusetts: July 1986 - December 1987

|                    | Adequate       | Intermediate | Inadequate or None | Unknown |
|--------------------|----------------|--------------|--------------------|---------|
|                    | % <sup>2</sup> | %            | %                  | %       |
| State Total        | 75.2           | 17.2         | 3.7                | 3.9     |
| Hispanic           | 57.9           | 29.1         | 8.0                | 5.1     |
| Puerto Rican       | 55.3           | 30.8         | 9.2                | 4.7     |
| Dominican          | 58.6           | 29.5         | 6.7                | 5.3     |
| Central American   | 60.7           | 26.2         | 5.6                | 7.5     |
| South American     | 64.6           | 26.1         | 4.7                | 4.6     |
| Mexican            | 62.0           | 21.7         | 9.2                | 7.1     |
| Cuban              | 72.8           | 16.1         | 4.3                | 6.8     |
| Other Hispanic     | 66.7           | 23.9         | 5.5                | 3.9     |
| White Non-Hispanic | 79.0           | 15.3         | 2.7                | 3.0     |
| Black Non-Hispanic | 56.4           | 26.5         | 10.1               | 7.0     |
| Other              | 63.7           | 23.3         | 6.8                | 6.2     |

\* Percents based on less than 5 are not calculated.  
<sup>1</sup> Percent adequate may differ from Table 1 because unknowns are included.  
<sup>2</sup> Percents based on total in the race/ethnic group.

TABLE 11. SOURCE OF PRENATAL CARE PAYMENT BY RACE/ETHNICITY  
Massachusetts: July 1986 - December 1987

|                    | Total Births | Private <sup>1</sup> | Medicaid | Healthy Start | Other Government <sup>2</sup> | Self Pay & Free Care <sup>3</sup> | Other Insurance |
|--------------------|--------------|----------------------|----------|---------------|-------------------------------|-----------------------------------|-----------------|
|                    | Number       | % <sup>4</sup>       | %        | %             | %                             | %                                 | %               |
| State Total        | 121 255      | 71.8                 | 16.3     | 4.9           | 4.9                           | 3.0                               | 2.2             |
| Hispanic           | 8 031        | 27.7                 | 56.8     | 7.8           | 2.5                           | 3.6                               | 1.6             |
| Puerto Rican       | 5 030        | 19.3                 | 72.1     | 3.5           | 1.9                           | 2.0                               | 1.3             |
| Dominican          | 1 005        | 28.7                 | 51.6     | 7.2           | 4.1                           | 6.3                               | 2.2             |
| Central American   | 703          | 42.7                 | 19.4     | 25.9          | 3.3                           | 6.8                               | 2.0             |
| South American     | 627          | 52.0                 | 14.8     | 21.2          | 2.2                           | 7.3                               | 2.4             |
| Mexican            | 182          | 57.7                 | 15.4     | 13.7          | 5.5                           | 7.1                               | *               |
| Cuban              | 157          | 61.8                 | 19.8     | 7.6           | 3.2                           | 3.8                               | 3.8             |
| Other Hispanic     | 327          | 41.9                 | 40.7     | 7.6           | 4.3                           | 3.7                               | 1.8             |
| White Non-Hispanic | 99 867       | 78.7                 | 10.6     | 4.1           | 1.6                           | 2.9                               | 2.2             |
| Black Non-Hispanic | 8 558        | 40.3                 | 40.3     | 10.5          | 3.1                           | 3.6                               | 2.2             |
| Other              | 3 851        | 57.9                 | 25.9     | 6.4           | 3.2                           | 3.8                               | 2.8             |

\* Percents based on fewer than 5 are not calculated.

<sup>1</sup> Private: Blue Cross, Commercial Insurer, Health Maintenance Organization.<sup>2</sup> Other Government: Workers' Compensation, Medicare, Other.<sup>3</sup> Self Pay & Free Care: includes uncompensated care.<sup>4</sup> Percents based on total in race/ethnic group.TABLE 12. SITE OF PRENATAL CARE BY RACE/ETHNICITY  
Massachusetts: July 1986 - December 1987

|                    | Total Births | Private        | Hospital Clinic | Health Maintenance Organization | Community Health Center | Other |
|--------------------|--------------|----------------|-----------------|---------------------------------|-------------------------|-------|
|                    | Number       | % <sup>1</sup> | %               | %                               | %                       | %     |
| State Total        | 121 750      | 72.4           | 12.2            | 8.6                             | 5.7                     | 1.1   |
| Hispanic           | 8 043        | 32.1           | 45.0            | 5.5                             | 15.9                    | 1.6   |
| Puerto Rican       | 5 037        | 28.3           | 51.0            | 4.7                             | 14.6                    | 1.5   |
| Dominican          | 1 006        | 30.9           | 44.9            | 4.8                             | 17.4                    | 2.0   |
| Central American   | 704          | 30.8           | 33.1            | 6.8                             | 28.3                    | 1.0   |
| South American     | 628          | 44.8           | 30.4            | 8.1                             | 14.8                    | 1.9   |
| Mexican            | 184          | 59.2           | 13.6            | 10.9                            | 14.1                    | *     |
| Cuban              | 157          | 54.8           | 21.7            | 10.2                            | 11.5                    | *     |
| Other Hispanic     | 327          | 47.4           | 34.9            | 6.7                             | 9.5                     | 1.5   |
| White Non-Hispanic | 100 306      | 80.2           | 7.1             | 8.6                             | 3.2                     | 0.9   |
| Black Non-Hispanic | 8 556        | 31.5           | 35.7            | 11.4                            | 19.8                    | 1.5   |
| Other              | 3 881        | 48.8           | 22.9            | 9.3                             | 17.6                    | 1.4   |

\* Percents based on fewer than 5 are not calculated.

<sup>1</sup> Percents based on total in race/ethnic group.

TABLE 13. PROPORTION OF MOTHERS WITH ADEQUATE PRENATAL CARE UTILIZATION  
FOR SELECTED SOURCES OF PAYMENT AND SITES OF CARE  
Massachusetts: July 1986 - December 1987

|                    | Prenatal Care Source of Payment |                |                      |                |                                   |                | Prenatal Site of Care |                |                 |                |                         |                |
|--------------------|---------------------------------|----------------|----------------------|----------------|-----------------------------------|----------------|-----------------------|----------------|-----------------|----------------|-------------------------|----------------|
|                    | Public                          |                | Private <sup>2</sup> |                | Self Pay & Free Care <sup>3</sup> |                | Private               |                | Hospital Clinic |                | Community Health Center |                |
|                    | #                               | % <sup>4</sup> | #                    | % <sup>4</sup> | #                                 | % <sup>4</sup> | #                     | % <sup>5</sup> | #               | % <sup>5</sup> | #                       | % <sup>5</sup> |
| Total Births       | 15066                           | 57.0           | 72733                | 85.8           | 2309                              | 65.6           | 70557                 | 82.1           | 8334            | 59.3           | 3768                    | 59.5           |
| Hispanic           | 2793                            | 54.5           | 1665                 | 77.6           | 166                               | 60.4           | 1664                  | 67.0           | 1979            | 57.2           | 632                     | 53.6           |
| Puerto Rican       | 1996                            | 53.7           | 716                  | 75.8           | 58                                | 59.2           | 849                   | 61.9           | 1363            | 55.2           | 379                     | 54.9           |
| Dominican          | 340                             | 56.6           | 203                  | 73.6           | 41                                | 67.2           | 184                   | 62.6           | 272             | 62.8           | 89                      | 54.9           |
| Central American   | 180                             | 57.7           | 222                  | 77.6           | 24                                | 54.5           | 161                   | 76.7           | 140             | 64.8           | 86                      | 48.9           |
| South American     | 127                             | 56.0           | 246                  | 78.1           | 26                                | 59.1           | 207                   | 75.5           | 107             | 60.4           | 46                      | 52.3           |
| Mexican            | 30                              | 52.6           | 81                   | 81.8           | *                                 | *              | 80                    | 76.9           | 10              | 43.5           | *                       | *              |
| Cuban              | 28                              | 63.6           | 81                   | 88.0           | 5                                 | 100.0          | 70                    | 85.4           | 21              | 70.0           | 10                      | 62.5           |
| Other Hispanic     | 92                              | 55.8           | 116                  | 87.2           | 9                                 | 81.8           | 113                   | 75.8           | 66              | 58.9           | 18                      | 66.7           |
| White Non-Hispanic | 9363                            | 60.3           | 66430                | 86.5           | 1905                              | 68.1           | 65313                 | 83.1           | 4352            | 63.9           | 1982                    | 66.9           |
| Black Non-Hispanic | 2173                            | 50.5           | 2509                 | 76.3           | 132                               | 47.1           | 1810                  | 69.4           | 1538            | 54.1           | 708                     | 46.8           |
| Other              | 596                             | 47.1           | 1747                 | 81.6           | 85                                | 64.9           | 1398                  | 76.8           | 387             | 46.5           | 391                     | 64.7           |

\* Numbers and percents based on fewer than 5 are not calculated.

<sup>1</sup> Public: Medicaid, Healthy Start, Medicare, Other Government, Workers' Compensation.

<sup>2</sup> Private: Blue Cross, Commercial Insurers, Health Maintenance Organization.

<sup>3</sup> Includes uncompensated care.

<sup>4</sup> Percent of women of a specific national origin in each payment group who received adequate prenatal care.

<sup>5</sup> Percent of women of a specific national origin at each site of care who received adequate prenatal care.

## ***APPENDICES***





## Glossary

### Adequacy of Prenatal Care

Based on the Kessner Index, prenatal care is classified into five categories (adequate, intermediate, inadequate, no prenatal care, and unknown). It is based upon trimester in which prenatal care began and the number of prenatal visits. The classification scheme is as follows:

| CATEGORY         | TRIMESTER CARE BEGAN | NUMBER OF VISITS |
|------------------|----------------------|------------------|
| Adequate         | 1                    | 9 or more        |
| Intermediate     | 1                    | 5 - 8            |
|                  | 2                    | 5 or more        |
| Inadequate       | 1                    | 1 - 4            |
|                  | 2                    | 1 - 4            |
|                  | 3                    | 1 or more        |
| No Prenatal Care | -                    | 0                |
| Unknown          | unknown              | unknown          |

This classification is adjusted for gestational age to allow for proper classification of premature births.

### Apgar Score

This is a general measure of physical condition of the newborn infant. It is performed two times at 1 minute and 5 minutes after birth. The infant is given a score between 0 (poor) and 2 (good) on five items: heart rate, respiration, muscle tone, reflex response, and color. The total on these five items makes up the summed Apgar score.

### Birthweight

Birthweight is the weight of an infant recorded at the time of delivery. Birthweight may be recorded in either pounds/ounces or grams.

Normal birthweight: An infant's birthweight of more than 2,500 grams or 5.5 lbs.

Low birthweight (LBW): An infant's birthweight of less than 2,500 grams or 5.5 lbs.

Very low birthweight (VLBW): An infant's birthweight of less than 1,500 grams or 3.3 lbs.

### Caesarean Section or C-Section

Primary: A mother's first occurrence of a caesarean section delivery.

Repeat: A caesarean delivery which has been preceded by at least one other caesarean delivery.

### Ethnicity

One of 38 codes indicating ancestry from the Parental Information Form. For data presented in this publication, ethnicity is that reported by the infant's mother.

Hispanic: A mother is considered Hispanic if she indicates 'Hispanic' as her race or indicates one of these groups for ethnicity: Puerto Rican, Dominican, Cuban, or Mexican. Persons who characterize their ancestry as Central American, South American, or from another Spanish-speaking country are classified as Hispanic as well.

Hispanic subgroup: One of seven groups of Hispanic ethnicity: Puerto Rican, Dominican, Cuban, Mexican, Central American, South American, or Other Hispanic.

### Gestational Age

The length of time a fetus is in utero before birth. Average gestational age is between 37 weeks and 42 weeks.

### Healthy Start

A Massachusetts-funded program providing services and financing for prenatal care and delivery to low-income pregnant women.

### Non-USA Mainland Born

Born outside of the continental United States. For example, women born in Puerto Rico, the Virgin Islands, and Guam are non-USA mainland born.

### Parity

The number of live births, including the present birth.

## Race

One of six codes indicating race from the Parental Information Form: White, Black, Asian Indian, other Asian, American Indian, and Other. For data presented in this publication, race is that reported by the infant's mother.

Race/ethnicity: Data on race and ethnicity for each parent were available in June 1986, by using the new birth certificate implemented on June 1, 1986. Race/ethnicity categories are assigned on the basis of the cross classification of the 38 ethnicity and six race codes. The major effect of this modification is the more precise specification of Hispanic ethnicity, resulting in a decrease in births previously classified as births to white mothers and an increase in Hispanic births.

Race subgroup: One of four race/ethnic groups - White non-Hispanic, Black non-Hispanic, Hispanic, or Other (includes Asian Indian, other Asian, American Indian, and Other).

## Resident Birth

The usual place of residence as reported by the mother. An infant's residence is considered to be that of the mother. In Massachusetts, a resident is a person with a permanent address in one of the 351 cities or towns. Vital statistics data may be presented either in terms of residence or occurrence. Resident data include all events which occur to residents of the Commonwealth, wherever they occur. Occurrence data include all events which occur within the state, including those which occur to non-residents. All data in this publication are resident data. There is an interstate exchange agreement among the 50 states and Canada which provides for exchange of copies of birth and death records. These records are used for statistical purposes only, and allow each state or province to track the births and deaths of its residents.

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## Maternity Hospitals in Massachusetts

|                          |                  |
|--------------------------|------------------|
| Addison Gilbert          | Gloucester       |
| Anna Jaques              | Newburyport      |
| Bay State Medical Center | Springfield      |
| Berkshire Medical Center | Pittsfield       |
| Beth Israel              | Boston           |
| Beverly                  | Beverly          |
| Bon Secours <sup>1</sup> | Methuen          |
| Boston City              | Boston           |
| Brigham & Women's        | Boston           |
| Brockton                 | Brockton         |
| Burbank                  | Fitchburg        |
| Cambridge City           | Cambridge        |
| Cape Cod                 | Barnstable       |
| Charlton Memorial        | Fall River       |
| Cooley Dickenson         | Northampton      |
| Emerson                  | Concord          |
| Fairview                 | Great Barrington |
| Falmouth                 | Falmouth         |
| Framingham Union         | Framingham       |
| Franklin County Public   | Greenfield       |
| Goddard Memorial         | Stoughton        |
| Harrington Memorial      | Southbridge      |
| Haverhill Municipal      | Haverhill        |
| Henry Heywood Memorial   | Gardner          |
| Hunt Memorial            | Danvers          |
| Jordan                   | Plymouth         |
| Lawrence General         | Lawrence         |
| Leominster               | Leominster       |
| Leonard Morse            | Natick           |
| Lowell General           | Lowell           |
| Lynn                     | Lynn             |
| Malden                   | Malden           |
| Martha's Vineyard        | Oak Bluffs       |
| Mary Lane                | Ware             |
| Melrose-Wakefield        | Melrose          |
| Milford-Whitinsville     | Milford          |
| Morton                   | Taunton          |
| Mount Auburn             | Cambridge        |
| Nantucket Cottage        | Nantucket        |
| New England Memorial     | Stoneham         |
| Newton-Wellesley         | Newton           |
| North Adams Regional     | North Adams      |
| Norwood                  | Norwood          |
| Providence               | Holyoke          |
| Quincy City              | Quincy           |
| Salem                    | Salem            |
| South Shore              | Weymouth         |
| St. Elizabeth's          | Boston           |
| St. Joseph's             | Lowell           |
| St. Luke's               | New Bedford      |
| St. Margaret's           | Boston           |
| St. Vincent's            | Worcester        |
| Sturdy Memorial          | Attleboro        |
| Tobey                    | Wareham          |
| Waltham                  | Waltham          |
| Worcester Hahnemann      | Worcester        |
| Worcester Memorial       | Worcester        |

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<sup>1</sup>In October 1988, the name of this facility was changed to Holy Family Hospital and Medical Center.

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PLACE OF BIRTH

3C. COUNTY

3B. CITY/TOWN

3A. FACILITY NAME—IF NOT IN FACILITY, NUMBER AND STREET



DEPARTMENT OF PUBLIC HEALTH  
REGISTRY OF VITAL RECORDS AND STATISTICS  
STANDARD CERTIFICATE OF LIVE BIRTH

30. CITY/TOWN MAKING RETURN

3E. REGISTERED NUMBER

1A. CERTIFICATE NUMBER  
(DPH USE ONLY)

2. FACILITY NUMBER

NAME 4A. FIRST 4B. MIDDLE 4C. LAST

5. SEX 6A. PLURALITY (Specify Single, Twin, etc.) 6B. BIRTH ORDER (If not single Specify Order First, Second, etc.) 7. TIME M 8. DATE OF BIRTH (Month, Day, Year)

NAME 9A. FIRST 9B. MIDDLE 9C. LAST 9D. SURNAME AT MOTHER'S BIRTH

BIRTHPLACE 10A. CITY/TOWN 10B. STATE/COUNTRY 11. DATE OF BIRTH (Month, Day, Year)

RESIDENCE 12A. NUMBER AND STREET (Do not use mailing address) 12B. CITY/TOWN 12C. COUNTY 12D. STATE 12E. ZIP CODE

NAME 13A. FIRST 13B. MIDDLE 13C. LAST

BIRTHPLACE 14A. CITY/TOWN 14B. STATE/COUNTRY 15. DATE OF BIRTH (Month, Day, Year)

16A. I (WE) CERTIFY THAT THE INFORMATION APPEARING ABOVE IS TRUE AND CORRECT (Signatures(s)) 16B. RELATIONSHIP

16C. DATE SIGNED (Month, Day, Year) 16D. MAILING ADDRESS (if different from item #12 above) NUMBER AND STREET CITY STATE ZIP CODE

17A. TYPE ☐ AT-BIRTH ☐ POST-NATAL ☐ CERTIFIER ONLY 17B. TITLE ☐ MD/DO ☐ CNM ☐ OTH. RN ☐ MIDWIFE ☐ OTHER

17C. SIGNATURE 17D. TYPE OR PRINT NAME (CH 46, SEC 3&9) 17E. LICENSE NUMBER

17F. NO. & STREET 17G. CITY/TOWN 17H. STATE 17I. ZIP CODE 17J. DATE SIGNED (Month, Day, Year)

18. DATE OF RECORD (Month, Day, Year) 19. SUPPLEMENT FILED (Month, Day, Year) 20. CLERK/REGISTRAR

22. CENSUS

21. CLERK/REGISTRAR OPH USE ONLY

NOT A LEGAL RECORD

CONFIDENTIAL INFORMATION — CHAPTER 111 SECTION 24B AS AMENDED — PHYSICIAN TO COMPLETE ITEMS IN RED WITHIN 24 HOURS (CHAP. 46 SEC. 3)

23A. OCCUPATION PAST YEAR 23B. INDUSTRY PAST YEAR 24A. RACE ☐ White ☐ Black ☐ Asian Indian ☐ Other Asian ☐ Amer. Indian ☐ Other (Specify) 24B. ANCESTRY 25. EDUCATION A. Elem/Sec. (0-12) B. College (0-4,5+)

26A. OCCUPATION PAST YEAR 26B. INDUSTRY PAST YEAR 27A. RACE ☐ White ☐ Black ☐ Asian Indian ☐ Other Asian ☐ Amer. Indian ☐ Other (Specify) 27B. ANCESTRY 28. EDUCATION A. Elem/Sec. (0-12) B. College (0-4,5+)

PREGNANCY HISTORY 29. PRIOR LIVE BIRTHS A. NOW LIVING B. BORN LIVE-NOW DEAD C. DATE OF LAST LIVE BIRTH (Month, Day, Year) 30. TERMINATIONS A. BEFORE 20 WKS B. 20 WKS OR MORE C. DATE LAST TERMINATION (Month, Day, Year) ☐ NONE ☐ NONE ☐ NONE

31. DATE LAST MENSES BEGAN (Month, Day, Year) 32. MONTH OF PREG. PRENATAL CARE BEGAN (First, Second, etc.) 33. TOTAL NUMBER PRENATAL VISITS # ☐ NONE 34A. TYPE OF PRACTITIONER PROVIDING PRENATAL CARE ☐ MO/DO ☐ PA ☐ NP ☐ CNM ☐ OTHER RN ☐ MIDWIFE ☐ OTHER (Specify)

34B. SITE OF PRENATAL CARE ☐ PRIVATE ☐ HOSP CLINIC ☐ HMO ☐ CHC ☐ OTHER (Specify) 34C. PRENATAL CARE METHOD OF PAYMENT ☐ BLUE CROSS ☐ COMM INS. ☐ HMO ☐ MEDICAID ☐ MEDICARE ☐ HEALTHY START ☐ OTHER GOV'T ☐ WORK COMP ☐ SELF-PAY ☐ FREE CARE ☐ OTHER (Specify) 35A. ALCOHOL 35B. TOBACCO

35C. OTHER CONCURRENT CONDITIONS (Separate by commas—Include up to 8 items)

36. METHOD OF DELIVERY ☐ VAGINAL AFTER PRIOR C-SECTION ☐ FORCEPS/VACUUM ☐ SPONTANEOUS ☐ PRIMARY C-SECTION ☐ REPEAT C-SECTION ☐ OTHER (Specify)

37. COMPLICATIONS OF LABOR (Separate by commas—Include up to 10 items) 38. OBSTETRIC PROCEDURES (Separate by commas—Include up to 10 items)

39. DELIVERY METHOD OF PAYMENT ☐ BLUE CROSS ☐ COMM INS. ☐ HMO ☐ MEDICAID ☐ MEDICARE ☐ HEALTHY START ☐ OTHER GOV'T ☐ WORK COMP ☐ SELF-PAY ☐ FREE CARE ☐ OTHER (Specify) 40. BIRTHWEIGHT LBS OZ OR GRAMS

41. APGAR SCORE (0-10) A. 1 Minute B. 5 Minute 42. CONGENITAL MALFORMATIONS (Include up to 5 items) 43. CONDITIONS OF NEWBORN (Include up to 5 items)

44. AT TIME OF THIS REPORT CHILD IS ☐ LIVING ☐ DEAD 45. IS MOTHER MARRIED? ☐ YES ☐ NO 46. IS MOTHER BREASTFEEDING? ☐ YES ☐ NO







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